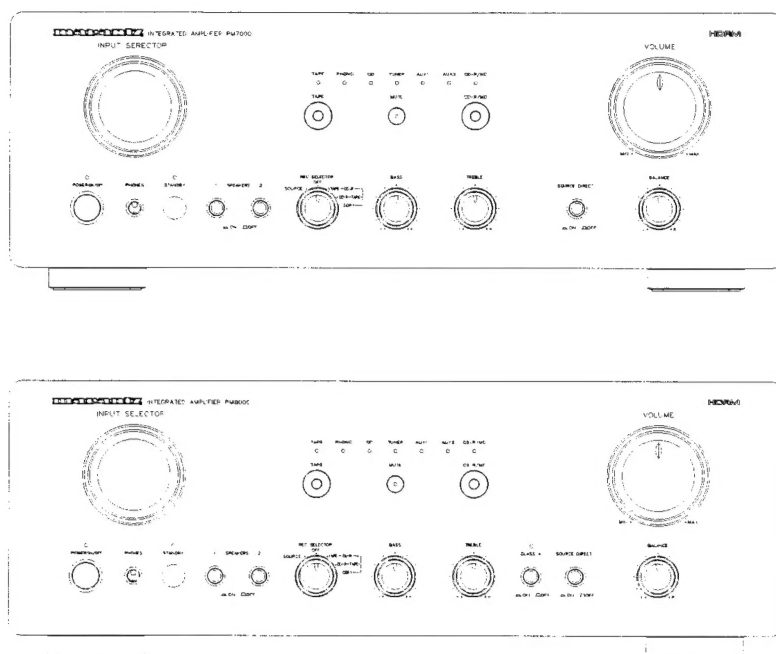


# Service Manual

**PM7000 /N1B, /N1G, /U1B**  
**PM8000 /N1B, /N1G, /F1B, /F1N**  
**Integrated amplifier**



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Please use this service manual with referring to the user guide (D.F.U) without fail.  
 修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行って下さい。

# marantz®

**- PM7000 / PM8000 -**

## MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

### ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

#### USA

**MARANTZ AMERICA, INC.**  
440 MEDINAH ROAD  
ROSELLE, ILLINOIS 60172  
USA  
PHONE : 630 - 307 - 3100  
FAX : 630 - 307 - 2687

#### EUROPE / TRADING

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5600 JB EINDHOVEN  
THE NETHERLANDS  
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FAX : 630 - 820 - 8103

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CANADA  
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FAX : 905 - 831 - 6936

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AUSTRALIA  
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FAX : +61 - 3 - 9543 - 3677

#### THAILAND

**MRZ STANDARD CO.,LTD**  
746 - 754 MAHACHAI ROAD.,  
WANGBURAPAPIROM, PHRANAKORN,  
BANGKOK, 10200 THAILAND  
PHONE : +66 - 2 - 222 9181  
FAX : +66 - 2 - 224 6795

#### SINGAPORE

**WO KEE HONG (S) PTE LTD**  
WO KEE HONG CENTRE  
NO.23, LORONG 8, TOA PAYOH  
SINGAPORE 319257  
PHONE : +65 2544555  
FAX : +65 2502213

#### TAIWAN

**PAI- YUNG CO., LTD.**  
6 TH FL NO, 148 SUNG KIANG ROAD,  
TAIPEI, 10429, TAIWAN R.O.C.  
PHONE : +886 - 2 - 25221304  
FAX : +886 - 2 - 25630415

#### MALAYSIA

**WO KEE HONG ELECTRONICS SDN. BHD.**  
SUITE 8.1, LEVEL 8, MENARA GENESIS,  
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35- 1, 7- CHOME, SAGAMIONO  
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営業本部 〒150-0022  
東京都渋谷区恵比寿南1-11-9

#### KOREA

**MK ENTERPRISES LTD.**  
ROOM 604/605, ELECTRO-OFFICETEL, 16-58,  
3GA, HANGANG-RO, YONGSAN-KU, SEOUL  
KOREA  
PHONE : +822 - 3232 - 155  
FAX : +822 - 3232 - 154

## SHOCK, FIRE HAZARD SERVICE TEST :

**CAUTION** : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins ( with unit NOT connected to AC mains and its Power switch ON ), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

## 1. SPECIFICATIONS

### Power output (class AB operation)

RMS 8ohms (20 Hz - 20 kHz)	95W
DIN 8 ohms	105W
THD at 8 ohms RMS rated output	0.03%
Damping factor	150

### Power out put (PM8000 classA operation)

RMS 8 ohms (20 Hz - 20 kHz)	25 W
DIN 8 ohms	28 W
THD at 8 ohms RMS. rated output	0.03%
Damping factor	130

### IHF dynamic power (class AB operation)

8 ohms	120 W
--------	-------

### IHF dynamic power (PM8000 class A operation)

8 ohms	35 W
--------	------

### Magnetic cartridge input (MM)

input sensitivity impedance	2.5 mV/47 kOhms
Accuracy of frequency response to IEC RIAA	0.5 dB
Signal to noise ratio	85 dB

### Tuner/CD/Aux/Tape inputs

input sensitivity impedance	150 mV/40 kOhms
Signal to noise ratio	109dB
Frequency response	
(-1 dB limits, Source Direct)	10 Hz - 50 kHz
Tone characteristic (100 Hz and 10 kHz)	±8 dB
Channel separation	
(1 kHz/10 kHz, Source direct)	>80 / >70 dB

### General

#### Power Requirements

/N versions	230 V AC, 50 Hz
/U versions	120 V AC, 60 Hz

#### Dimensions

Width	440 mm
Height	159 mm
Depth	370.5 mm

#### Weight

Unit alone	12.3 kg
------------	---------

Specifications subject to change without prior notice

定格出力(20 Hz - 20 kHz 両チャンネル同時駆動)

クラスAB	95 W × 2 (8 Ω 負荷)
クラスA	25 W × 2 (8 Ω 負荷)

全高周波歪率(20 Hz - 20 kHz, 10 W出力時8 Ω負荷)

クラスAB	0.015%
クラスA	0.010%

混交調歪率 (SMPTE)

	0.015%
--	--------

出力帯域幅 (8Ω負荷,0.08%歪率)

	10 Hz - 80 kHz
--	----------------

周波数特性

(CD,ソースダイレクト)

	10 Hz - 50 kHz +0 dB -1 dB
--	----------------------------

ダンピングファクター (8 Ω負荷,100 Hz - 10 kHz)

	130
--	-----

入力感度/入力インピーダンス

PHONO (MM)	2.5 mV/47 kΩ
------------	--------------

HIGH LEVEL	150 mV/40 kΩ
------------	--------------

PHONO最大許容入力 (1 kHz)

(MM)	150 mV
------	--------

RIAA偏差 (20 Hz)

	-2 dB
--	-------

(40 Hz - 20 kHz)	±0.5 dB
------------------	---------

S/N比 (IHF,Aネットワーク,入力ショート)

PHONO (MM)	85 dB
------------	-------

HIGH LEVEL	109 dB
------------	--------

トーンコントロール

BASS (100 Hz)	±8 dB
---------------	-------

TREBLE (10 kHz)	±8 dB
-----------------	-------

電源電圧

	AC 100 V, 50 Hz/60 Hz
--	-----------------------

消費電力 (電気用品取締法)

	160 W
--	-------

最大外形寸法

幅	440 mm
---	--------

高さ	159 mm
----	--------

奥行き	370.5 mm
-----	----------

質量

	12.3 kg
--	---------

付属品

リモートコントロール送信機(RC8000PM)	1台
-------------------------	----

本機の規格および外観は改良のため予告なく変更することがあります。

## 2.TEST EQUIPMENT REQUIRED FOR SERVICING

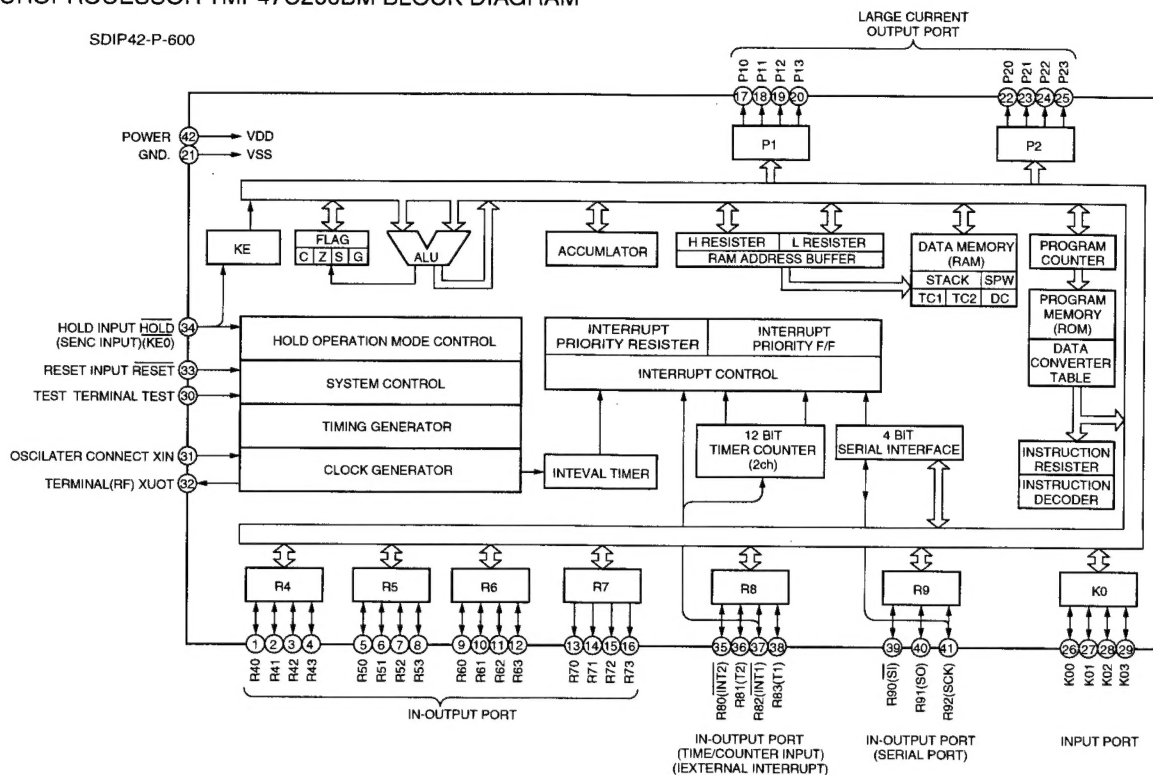
Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
AC VTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO alignment
DC VTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors of primary voltage to amplifier
Variable Autotransformer	Adjust level of primary voltage to amplifier
Circuit Tester	Trouble shooting
Shortting Plug	Shorts amplifier input to eliminate noise pickup

項 目	使 用 方 法
歪 率 計	歪の測定
低 周 波 発 振 器	正弦波および矩型波の信号源
A C V T V M	交流電圧の測定
オ シ ロ ス コ ー プ	波計分析、トラブルシューティングおよびASOの調整
D C V T V M	直流電圧の測定
交流ワットメーター	アンプの一次側消費電力のモニター
電 源 電 圧 計	アンプの一次側電圧のモニター
ス ラ イ ダ ッ ク	アンプの一次側電圧の調整
テ ス タ ー	トラブルシューティング
ショート用プラグ	雑音を拾わないようにアンプ入力を短絡する



### 3. IC INFORMATIONS

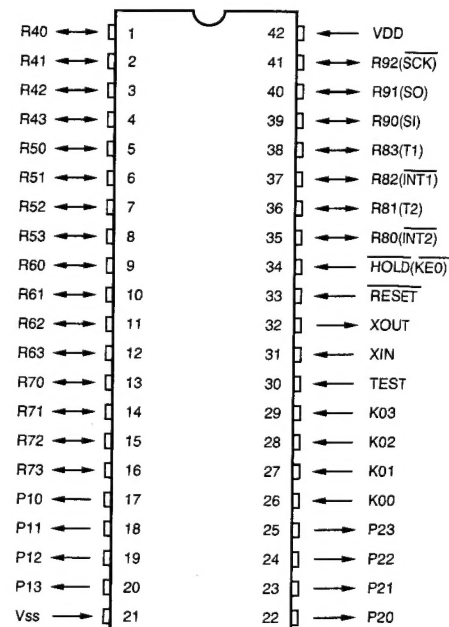
#### MICROPROCESSOR TMP47C200BM BLOCK DIAGRAM



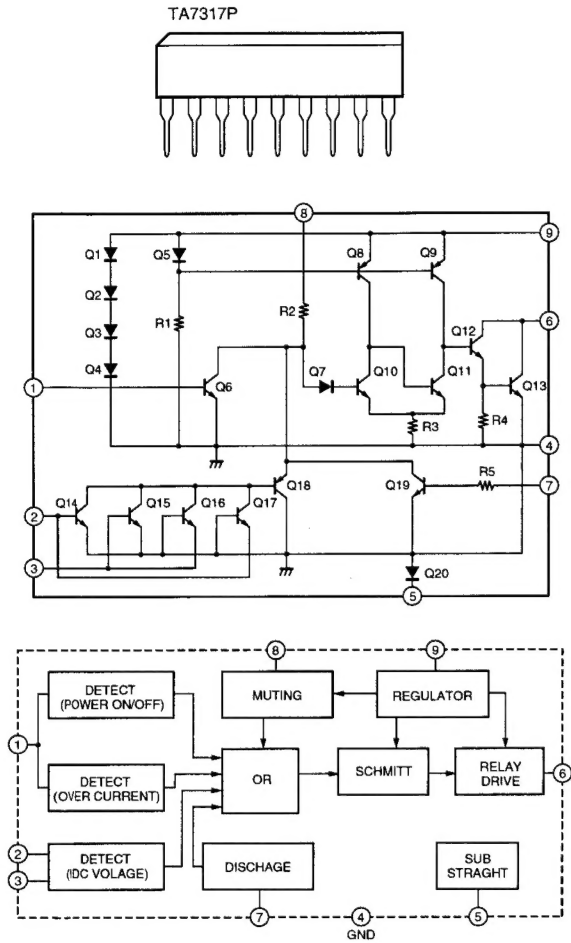
PIN no.	PORT NAME	ACT	FUNCTION
1	R40	MMUT	H MANUAL MUTE SIGNAL MUTE
2	R41	FMUT	L SIGNAL(SOURCE/MONITOR SWITCH)
3	R42	VOUP	L MOTOR DRIVE VOLUME UP
4	R43	VODW	L MOTOR DRIVE VOLUME DOWN
5	R50	T3K	L MONITOR INPUT SWITCH (TAPE3)
6	R51	T2K	L MONITOR INPUT SWITCH (TAPE2)
7	R52	T1K	L MONITOR INPUT SWITCH (TAPE1)
8	R53	AX2K	L SOURCE INPUT SWITCH (AUX2)
9	R60	AX1K	L SOURCE INPUT SWITCH (AUX1)
10	R61	TJNK	L SOURCE INPUT SWITCH (TUNER)
11	R62	CDK	L SOURCE INPUT SWITCH (CD)
12	R63	PHOK	L SOURCE INPUT SWITCH (PHONO)
13	R70	LSTB	L LED INDICATOR STAND BY DISPLAY
14	R71	LMUT	L LED INDICATOR MUTE DISPLAY
15	R72	LPRO	L LED INDICATOR PROCESSOR DISPLAY
16	R73	LTP3	L LED INDICATOR TAPE3 DISPLAY
17	P10	LTP2	L LED INDICATOR TAPE2 DISPLAY
18	P11	LTP1	L LED INDICATOR TAPE1 DISPLAY
19	P12	LSOU	L LED INDICATOR SOURCE DISPLAY
20	P13	LAX2	L LED INDICATOR AUX2 DISPLAY
21	VSS		GND.
22	P20	LAX1	L LED INDICATOR AUX1 DISPLAY
23	P21	LTUN	L LED INDICATOR TUNER DISPLAY
24	P22	LECD	L LED INDICATOR CD DISPLAY
25	P23	LPHO	L LED INDICATOR PHONO DISPLAY
26	K00	1RS	L SOURCE INPUT SWITCH(ROTARY ENCODER) bit1
27	K01	2RS	L SOURCE INPUT SWITCH(ROTARY ENCODER) bit2
28	K02	PRK	L PROCESSOR IN-OUT SWITCH
29	K03	MUK	L MANUAL MUTE
30	TEST		NOT USED (GND)
31	XIN		CLOCK 4.00 MHz (IN)
32	XOUT		CLOCK 4.00 MHz (OUT)
33	RESET	RES	L SYSTEM RESET
34	HOLD	PDW	L POWER DOWN CHECK
35	R80	RXRC	L REMOTE CONTROL INPUT (RC-5)
36	R81	EN1	MODEL SELECT 1
37	R82	EN2	MODEL SELECT 2
38	R83	EN3	MODEL SELECT 3
39	R90	TXRC	L SERIAL DATA(RC-5 REMOTE CONTROL)
40	R91	ENTX	L ENABLE (REMOTE CONTROL)
41	R92	RELY	L STAND-BY RELAY CONTROL
42	VDD		POWER SUPPLY

#### MICROPROCESSOR TMP47C200BM Position NO.7401

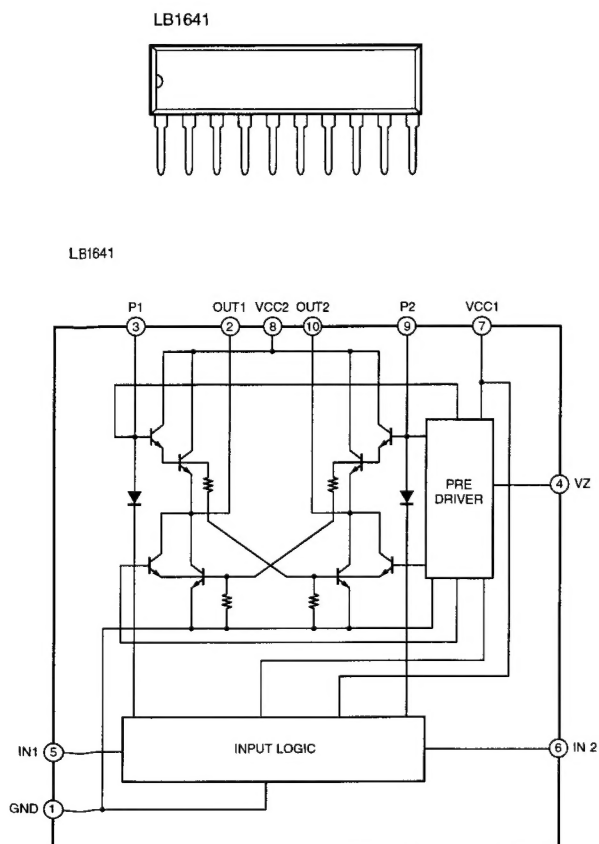
SDIP42-P-600



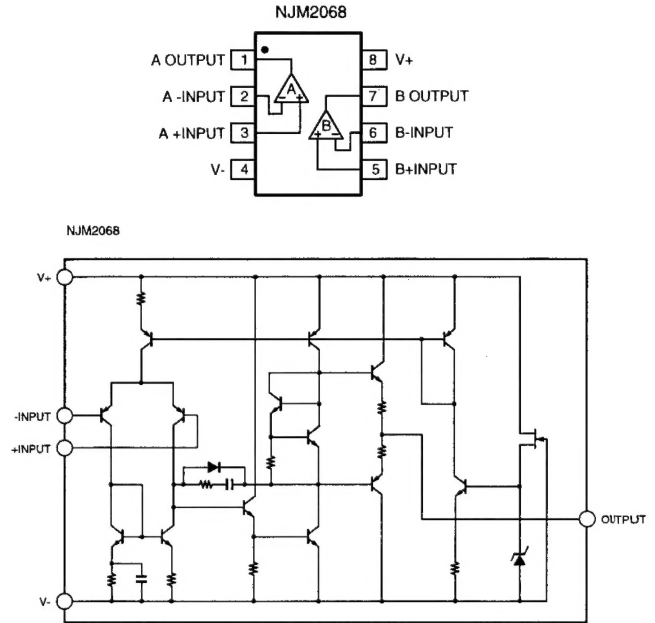
## TA7317P (Position NO.7290)



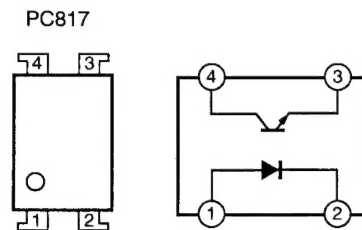
## LB1641(Position NO.7402)



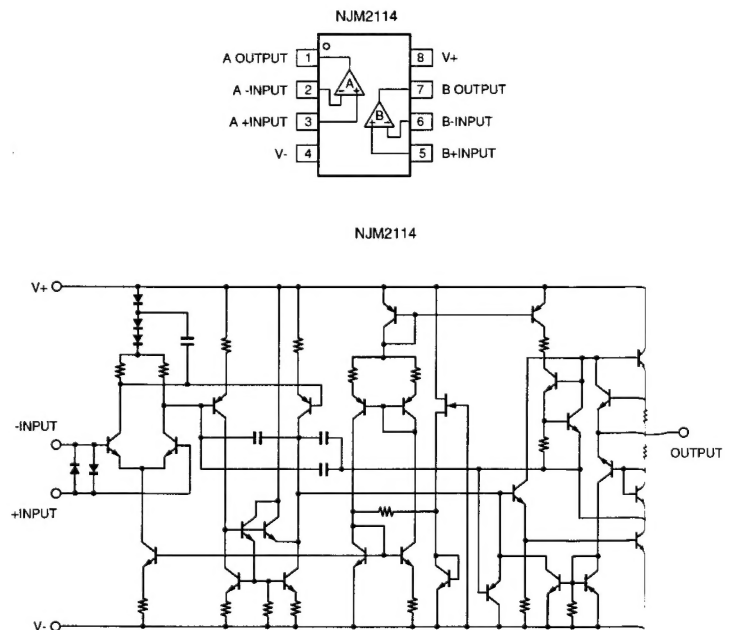
## NJM2068 (Position NO.7501,7502,7503)



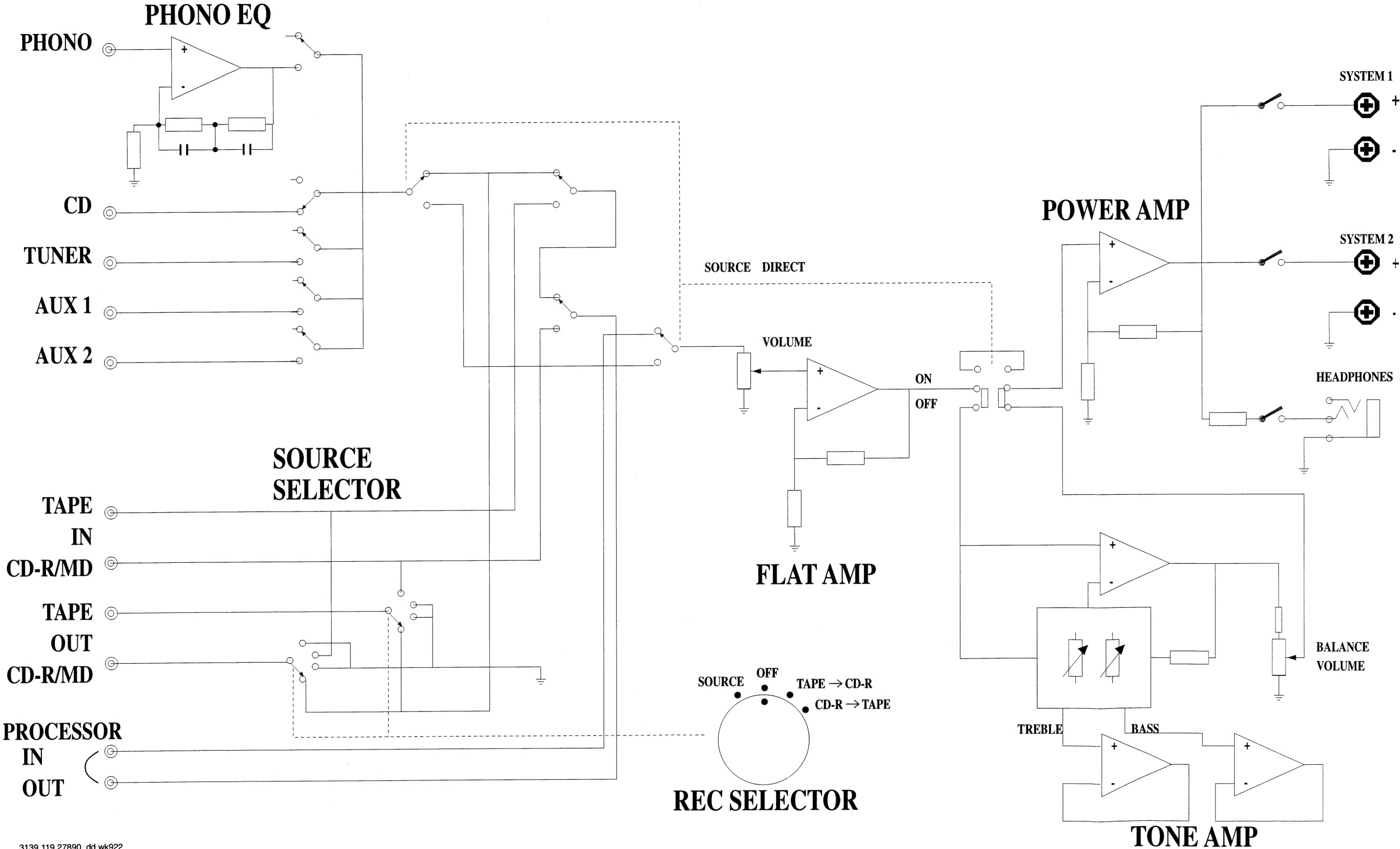
## PC817 (Position NO.7269,7270)



## NJM2114(Position NO.7555,7655)

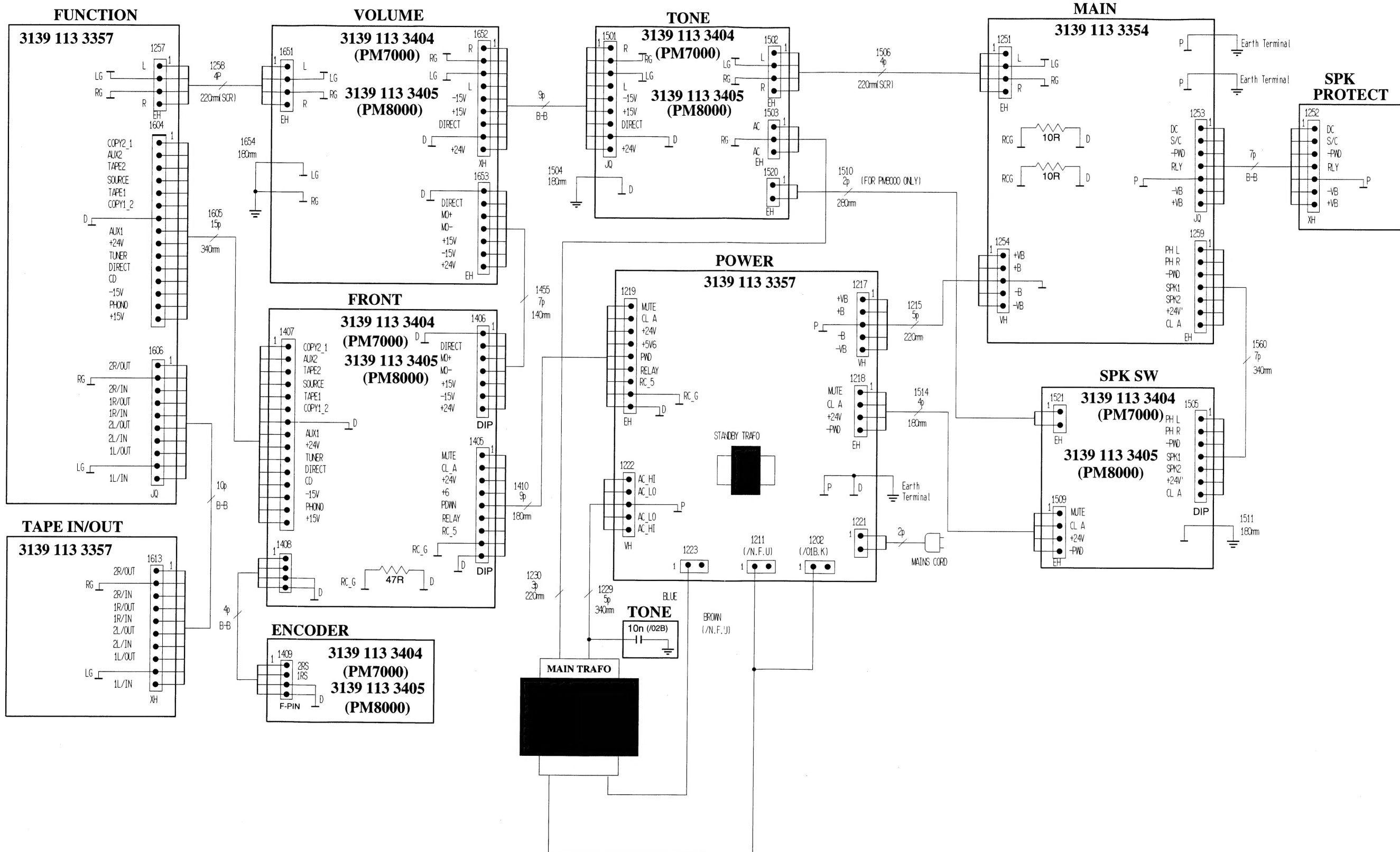


4. BLOCK DIAGRAM

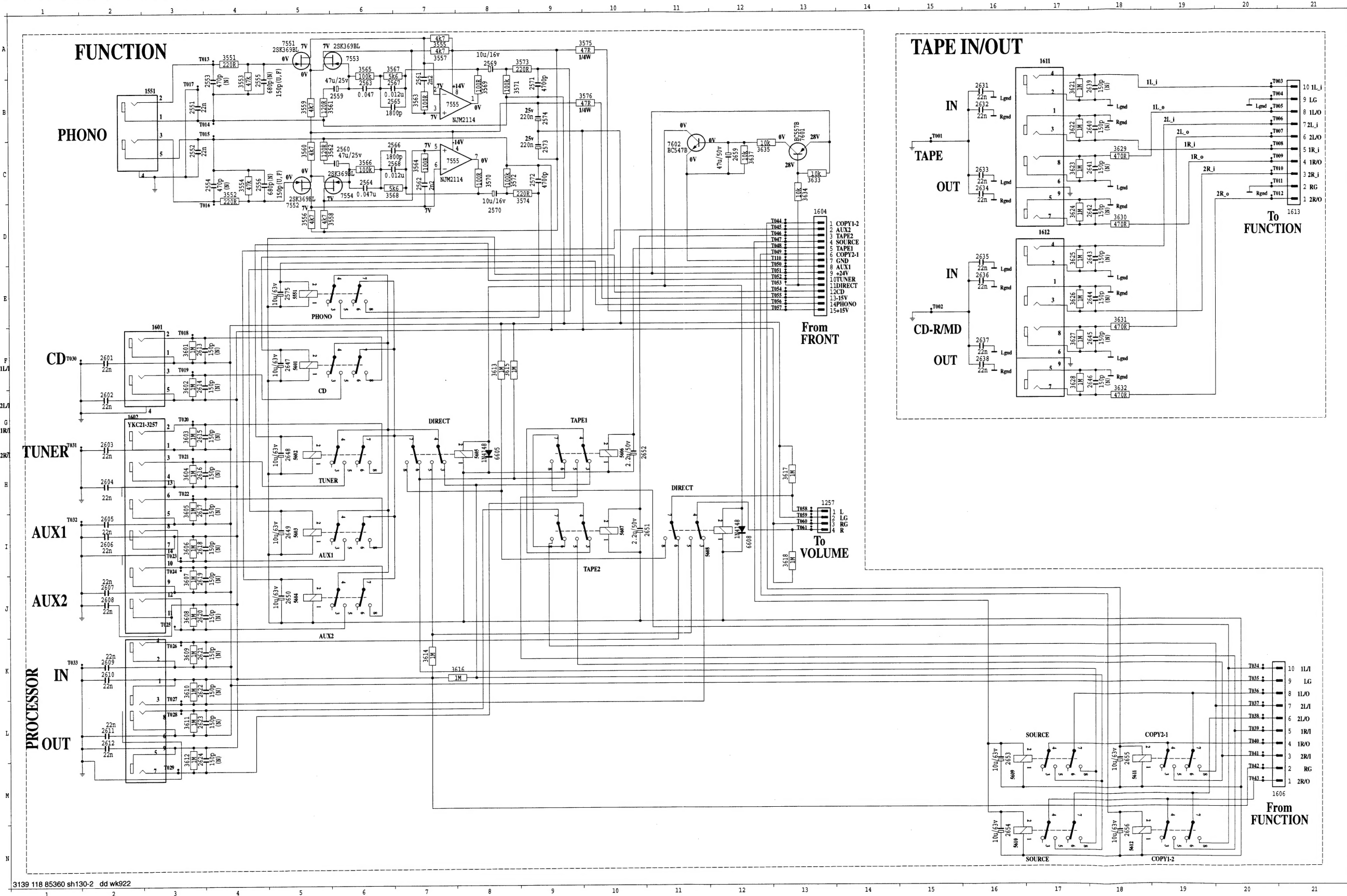


3139 119 27890 dd wk922

## 5. WIRING DIAGRAM

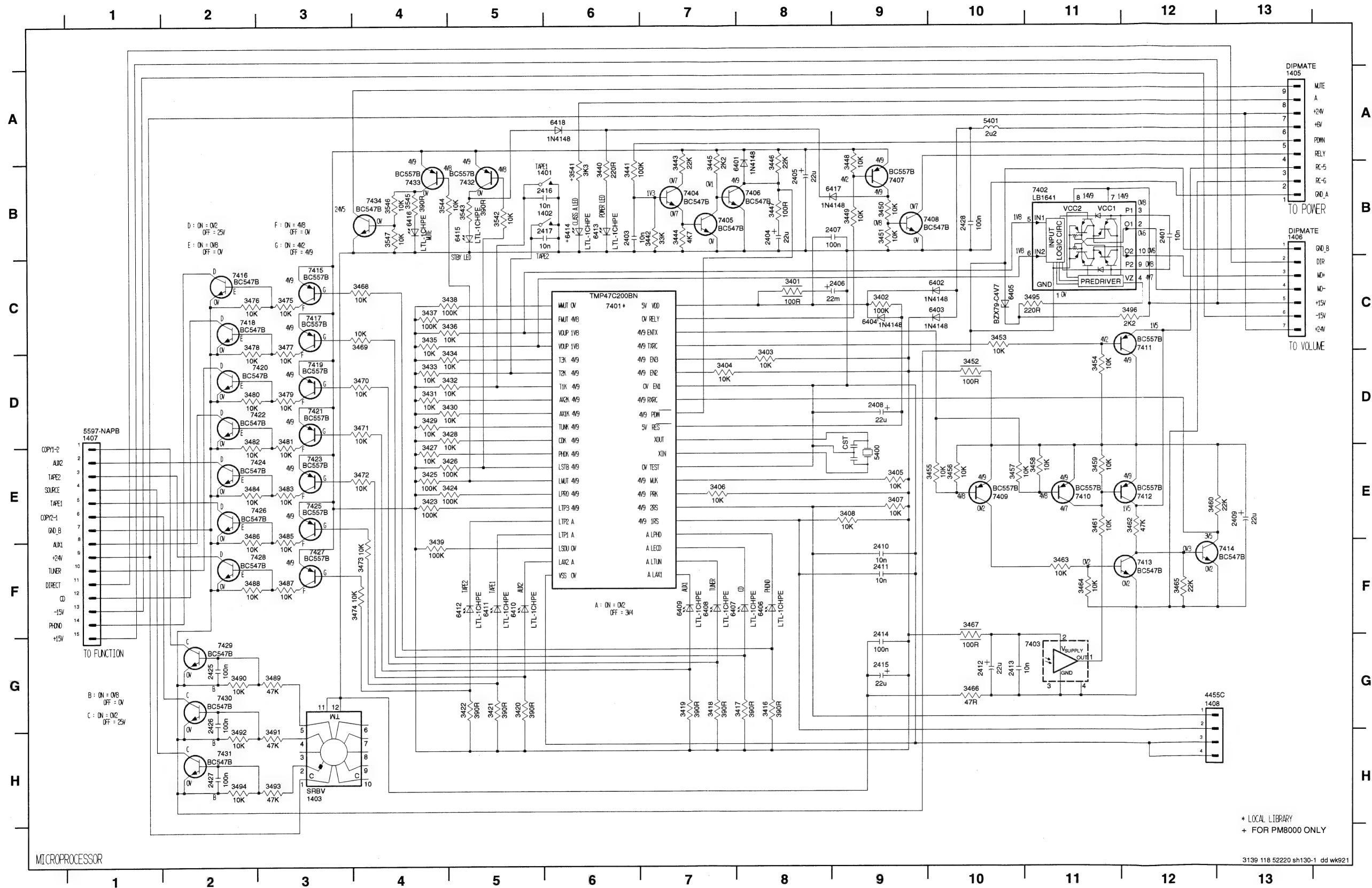


# 6. SCHEMATIC DIAGRAM AND PARTS LOCATION (PARTS SIDE) FUNCTION & TAPE IN/OUT CIRCUIT





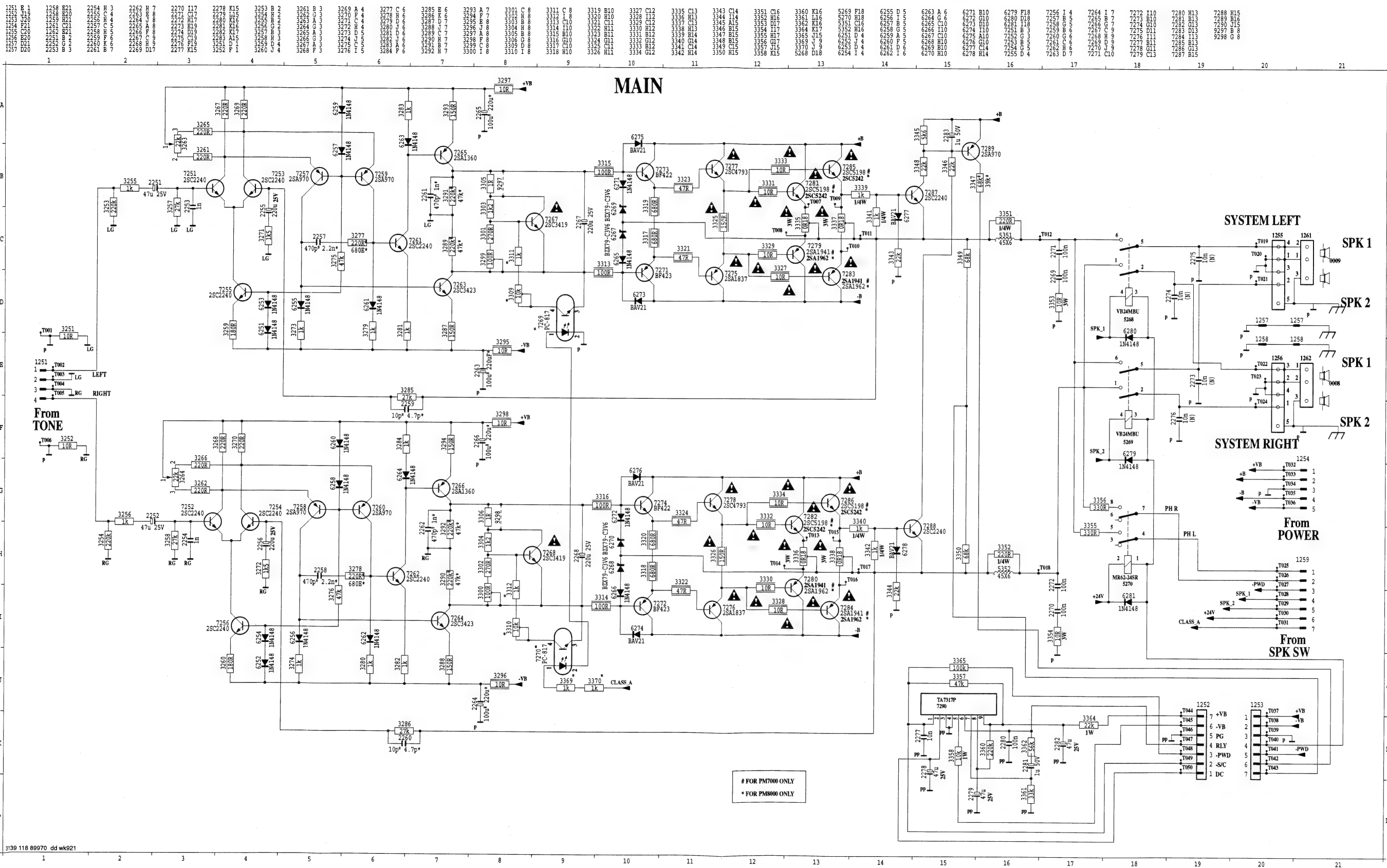
## FRONT CIRCUIT



1401 B6 3487 F3  
1402 B6 3488 F2  
1403 H3 3489 G3  
1405 A13 3490 G2  
1406 B13 3491 H3  
1407 D1 3492 H2  
1408 G12 3493 H3  
2401 B12 3494 H2  
2403 B6 3495 C11  
2404 B8 3496 C12  
2405 B8 3541 B6  
2406 C9 3542 B5  
2407 B9 3543 B5  
2408 D9 3544 B4  
2409 E13 3545 B4  
2410 F9 3546 B4  
2411 F9 3547 B4  
2412 G10 5400 E9  
2413 G10 5401 A10  
2414 G9 6401 B8  
2415 G9 6402 C10  
2416 B6 6403 C10  
2417 B6 6404 C9  
2425 G2 6405 C10  
2426 G2 6406 F8  
2427 H2 6407 F7  
2428 B10 6408 F7  
3401 C8 6409 F7  
3402 C9 6410 F5  
3403 D8 6411 F5  
3404 D7 6412 F5  
3405 E9 6413 B6  
3406 E7 6414 B6  
3407 E9 6415 B5  
3408 E9 6416 B4  
3416 G8 6417 B9  
3417 G8 6418 A6  
3418 G7 7401 C6  
3419 G7 7402 B11  
3420 G5 7403 G11  
3421 G5 7404 B7  
3422 G5 7405 B7  
3423 E4 7406 B8  
3424 E5 7407 B9  
3425 E4 7408 B9  
3426 E5 7409 E10  
3427 E4 7410 E11  
3428 D5 7411 C12  
3429 D4 7412 E2  
3430 D5 7413 F12  
3431 D4 7414 F13  
3432 D5 7415 C3  
3433 D4 7416 C2  
3434 D5 7417 C3  
3435 C4 7418 C2  
3436 C5 7419 D3  
3437 C4 7420 D3  
3438 C5 7421 D3  
3439 F4 7422 D3  
3440 B6 7423 E3  
3441 B6 7424 E3  
3442 B7 7425 E3  
3443 B7 7426 E3  
3444 B7 7427 F3  
3445 B7 7428 F3  
3446 B8 7429 G2  
3447 B8 7430 G2  
3448 B9 7411 H2  
3449 B9 7422 B5  
3450 B9 7433 B4  
3451 B9 7434 B4  
3452 D10  
3453 C10  
3454 D11  
3455 E10  
3456 E10  
3457 E10  
3458 E11  
3459 E11  
3460 E12  
3461 E11  
3462 E12  
3463 F11  
3464 F11  
3465 F12  
3466 G10  
3467 F10  
3468 C4  
3469 C4  
3470 D4  
3471 D4  
3472 E4  
3473 F4  
3474 F3  
3475 C3  
3476 C2  
3477 C3  
3478 C2  
3479 D3  
3480 D2  
3481 D3  
3482 D2  
3483 E3  
3484 E2  
3485 E3  
3486 E2

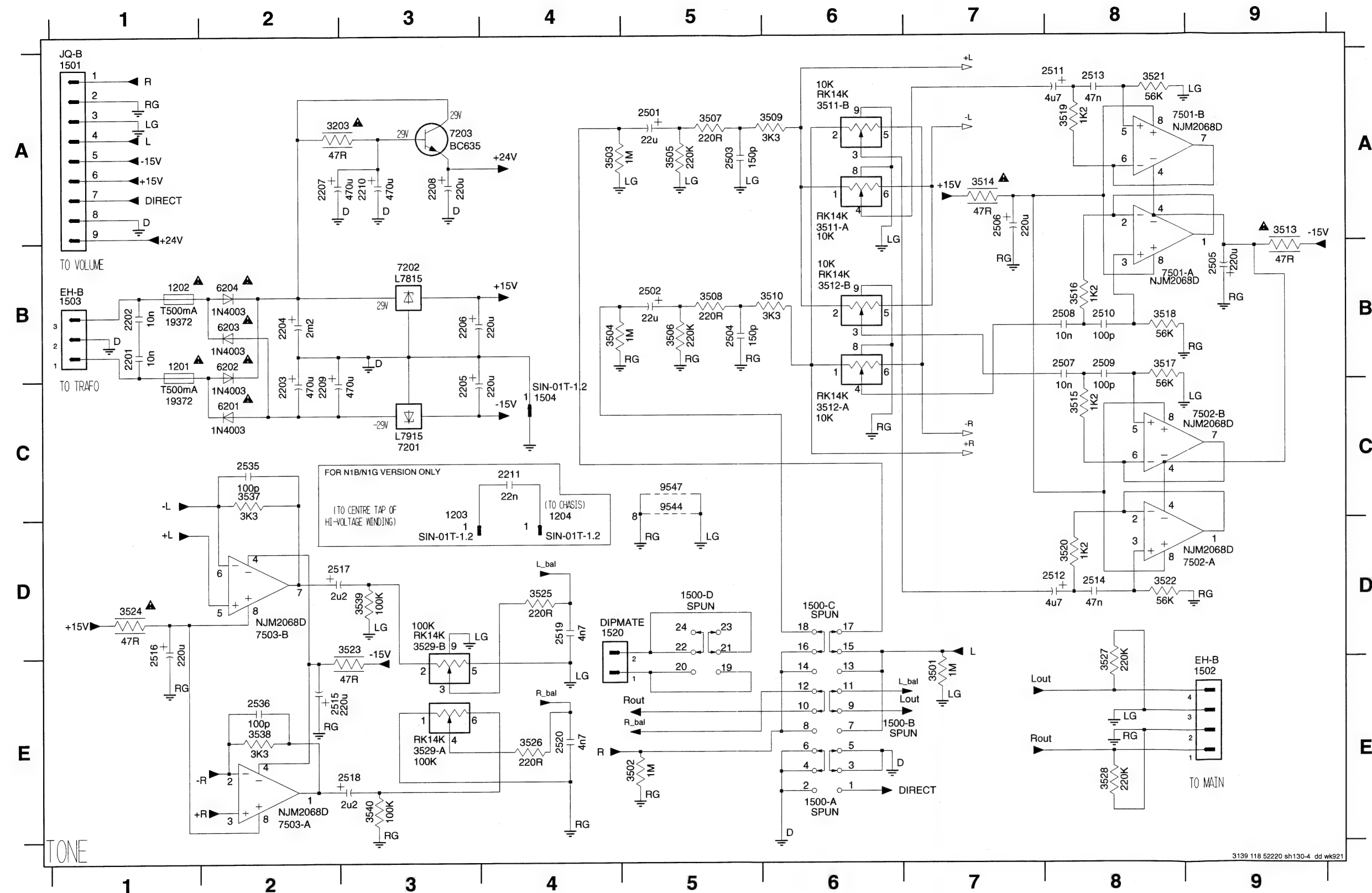


MAIN CIRCUIT



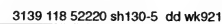


# TONE CIRCUIT



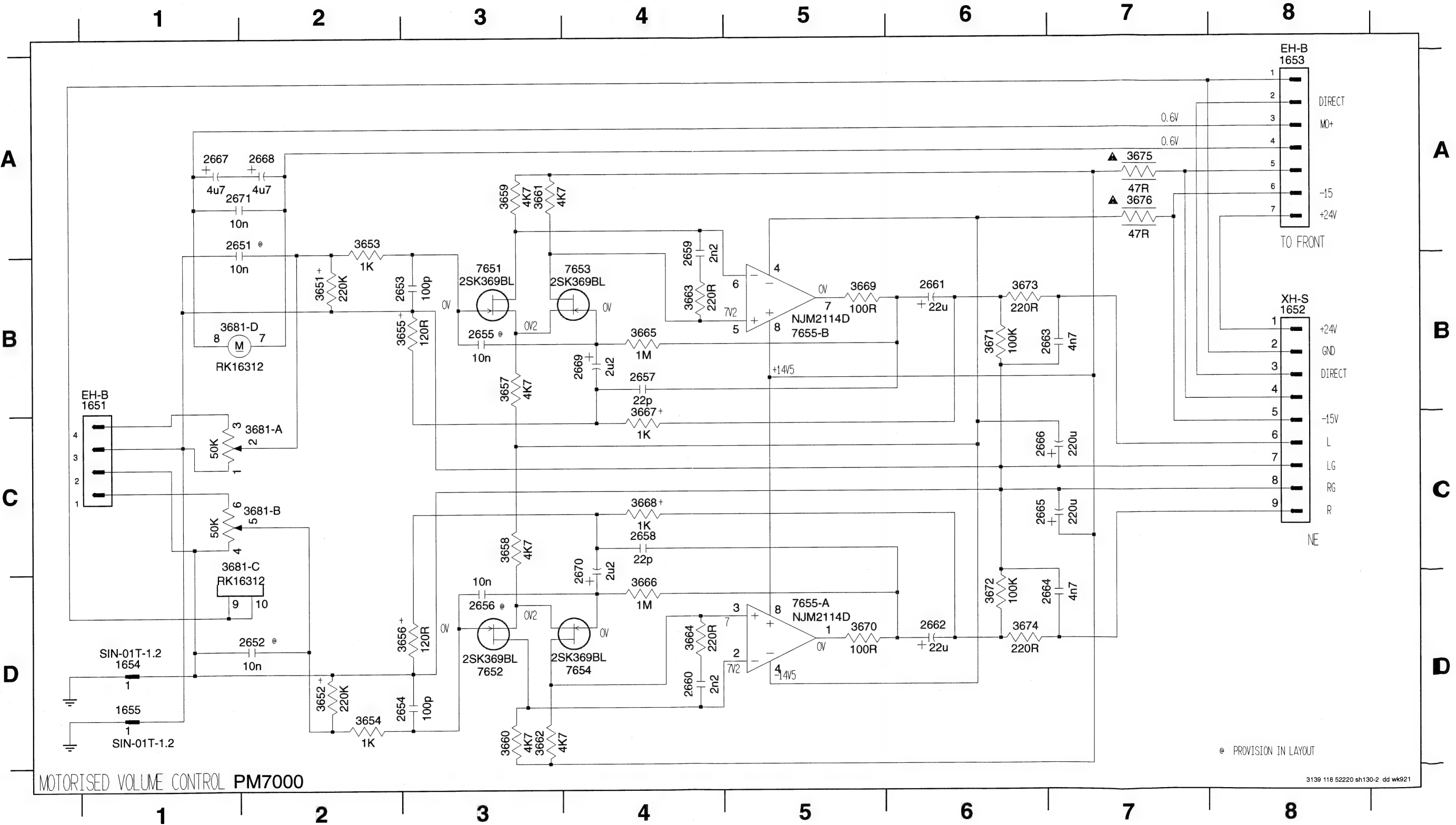
1201 B1	3524 D1
1202 B1	3525 D4
1203 C3	3526 E4
1204 C4	3527 E8
1500-A E6	3528 E8
1500-B E7	3529-A E3
1500-C D6	3529-B D3
1500-D D5	3537 C2
1501 A1	3538 E2
1502 E9	3539 D3
1503 B1	3540 E3
1504 C4	6201 C2
1520 D5	6202 B2
2201 B1	6203 B2
2202 B1	6204 B2
2203 C2	7201 C3
2204 B2	7202 B3
2205 C3	7203 A3
2206 B3	7501-A B8
2207 A2	7501-B A8
2208 A3	7502-A D8
2209 C2	7502-B C9
2210 A3	7503-A E2
2211 C4	7503-B D2
2501 A5	9544 C5
2502 B5	9547 C5
2503 A5	
2504 B5	
2505 B9	
2506 A7	
2507 B8	
2508 B8	
2509 B8	
2510 B8	
2511 A8	
2512 D8	
2513 A8	
2514 D8	
2515 E2	
2516 D1	
2517 D2	
2518 E3	
2519 D4	
2520 E4	
2535 C2	
2536 E2	
3203 A2	
3501 E7	
3502 E5	
3503 A4	
3504 B4	
3505 A5	
3506 B5	
3507 A5	
3508 B5	
3509 A6	
3510 B6	
3511-A A6	
3511-B A6	
3512-A C6	
3512-B B6	
3513 A9	
3514 A7	
3515 C8	
3516 B8	
3517 B8	
3518 B8	
3519 A8	
3520 D8	
3521 A8	
3522 D8	
3523 D3	

1505 A1	1509 C4	1521 E4	3530 E2	3533 A2	6529 D1	9508 C2
1507-A B2	1510 A3	2533 A2	3531 E2	3534 A2	7529 D2	
1507-B B3	1511 E2	2534 A2	3532 D3	3535 D2	7530 D2	

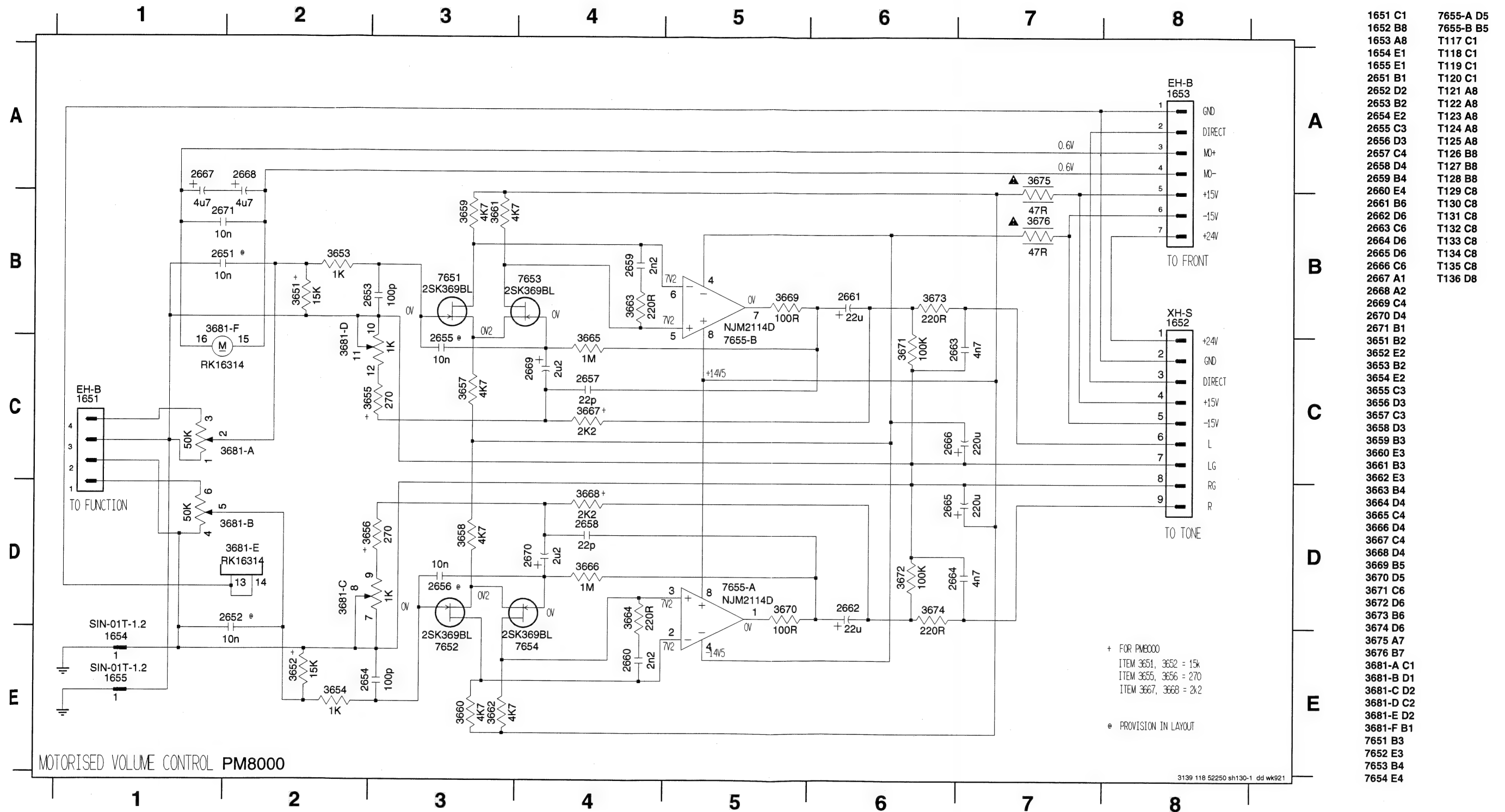
[illegible]

VOLUME CONTROL CIRCUIT (PM7000)

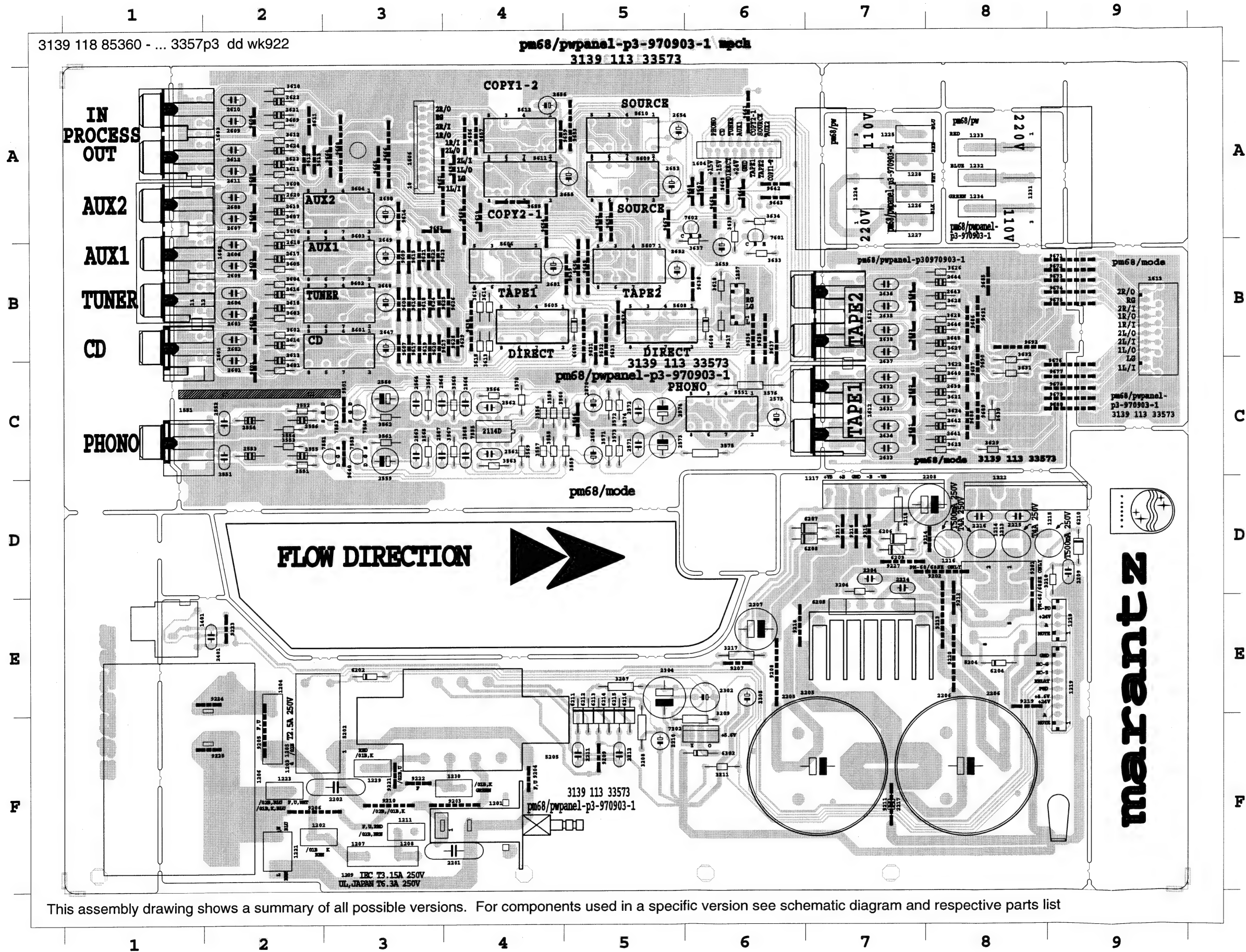
1651 B1	1655 D1	2654 D3	2658 C4	2662 D6	2666 C6	2670 C4	3653 A2	3657 B3	3661 A3	3665 B4	3669 B5	3673 B6	3681-A C2	7651 B3	7655-A D5
1652 B8	2651 A1	2655 B3	2659 A4	2663 B7	2667 A1	2671 A1	3654 D2	3658 C3	3662 D3	3666 D4	3670 D5	3674 D6	3681-B C2	7652 D3	7655-B B5
1653 A8	2652 D2	2656 D3	2660 D4	2664 D7	2668 A2	3651 B2	3655 B3	3659 A3	3663 B4	3667 C4	3671 B6	3675 A7	3681-C C2	7653 B4	
1654 D1	2653 B3	2657 B4	2661 B6	2665 C6	2669 B4	3652 D2	3656 D3	3660 D3	3664 D4	3668 C4	3672 D6	3676 A7	3681-D B1	7654 D4	



## VOLUME CONTROL CIRCUIT (PM8000)



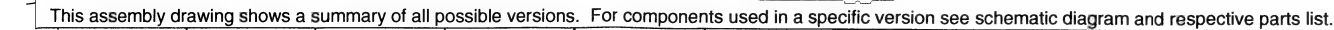
## FUNCTION & TAPE IN / OUT & POWER BOARD



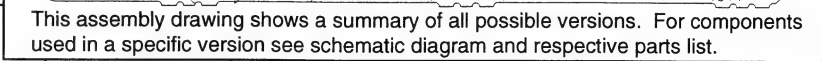
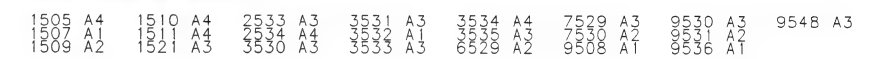
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1602	B	1	3565	C	3	9627	B	3	1401	E	1
1603	A	1	3566	C	3	9628	B	4	2201	F	4
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2553	C	2	3574	C	5	9636	B	6	2210	F	5
2554	C	2	3575	C	6	9637	B	6	2211	F	5
2555	C	2	3576	C	6	9638	B	6	2212	F	5
2556	C	2	3601	C	2	9639	B	5	2214	D	7
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2560	C	3	3603	B	2	9641	A	6	2216	D	8
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2565	C	4	3608	A	2	9646	C	5	2401	E	2
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2567	C	3	3610	A	2	9648	A	6	3207	E	5
2568	C	3	3611	A	2	9649	B	5	3208	F	5
2569	C	5	3612	A	2	9650	B	5	3209	F	6
2570	C	5	3613	B	4	9651	A	5	3210	D	9
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2572	C	5	3615	B	4	9653	A	5	3217	E	6
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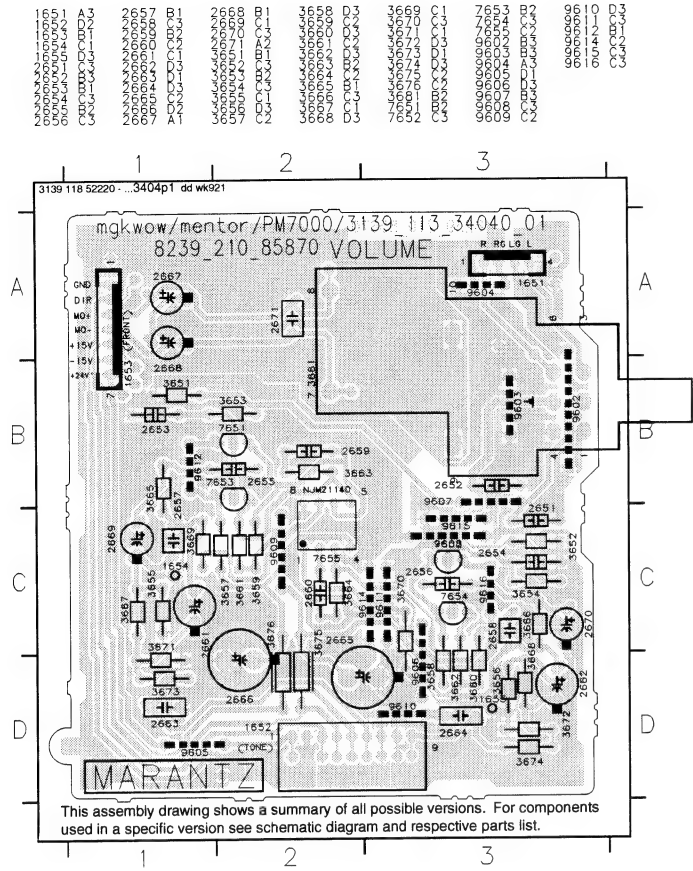
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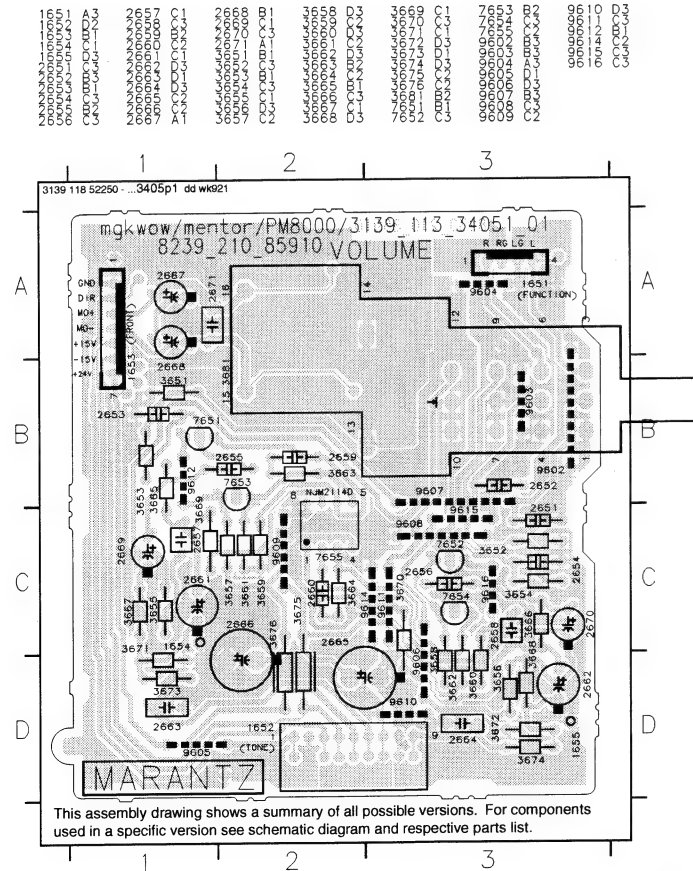
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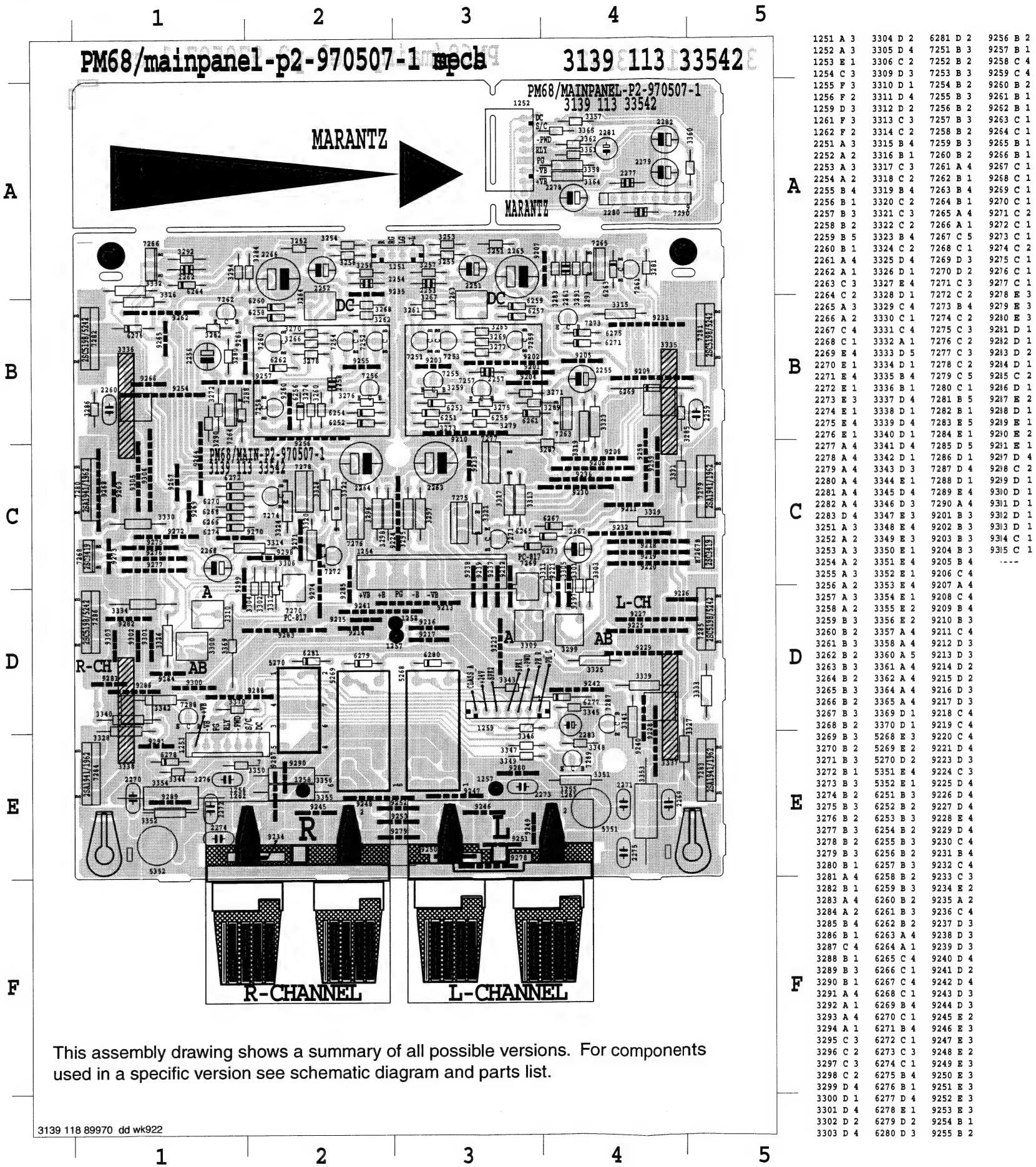
VOLUME BOARD (PM7000)



VOLUME BOARD (PM8000)

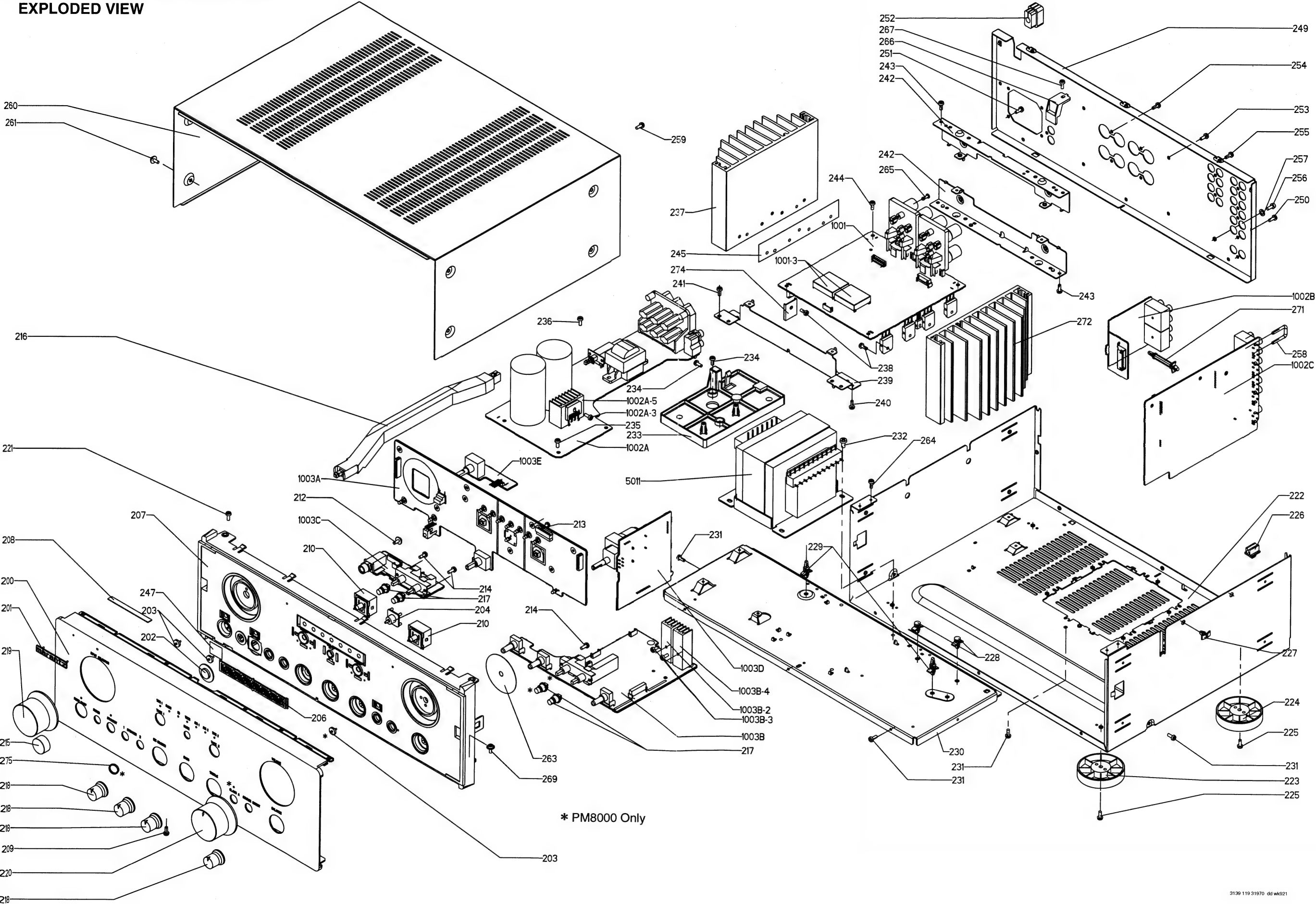


MAIN & SP PROTECT BOARD





7. EXPLODED VIEW AND PARTS LIST  
EXPLODED VIEW





POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
200	PM7000 BLK	3139 117 88070	FRONT PANEL BLACK
200	PM8000 BLK	3139 117 88080	FRONT PANEL BLACK
200	PM7000 GLD	3139 117 88050	FRONT PANEL GOLD
200	PM8000 GLD	3139 117 88060	FRONT PANEL GOLD
201		4822 454 11825	PLATE, INDICATION
202	BLK	3139 114 66790	WINDOW IR BLACK
202	GLD	3139 114 66800	WINDOW IR GOLD
203		3139 114 66920	LIGHT GUIDE POWER/CLASS
204		3139 114 66900	LIGHT GUIDE MUTE
206		3139 114 66910	LIGHT GUIDE SOURCE
207	BLK	3139 114 66940	CABINET, FRONT BLACK
207	GLD	3139 117 88580	CABINET, FRONT GOLD
210	BLK	3139 114 66930	BUTTON TAPE BLACK
210	GLD	3139 117 88610	BUTTON TAPE GOLD
215	BLK	4822 410 12499	PUSH BUTTON, POWER
215	GLD	4822 410 12552	PUSH BUTTON, POWER
216		3139 114 66970	LINK, POWER
217	BLK	3139 114 66770	BUTTON, PUSH BLACK
217	GLD	3139 117 88600	BUTTON, PUSH GOLD
218	BLK	3139 114 66750	KNOB, ROTARY BLACK
218	GLD	3139 117 88590	KNOB, ROTARY GOLD
219	BLK	3139 117 88040	KNOB, SELECTOR BLACK
219	GLD	3139 117 88110	KNOB, SELECTOR GOLD
220	BLK	3139 117 88030	KNOB, VOL BLACK
220	GLD	3139 117 88090	KNOB, VOL GOLD
223		4822 462 42129	FOOT FRONT
224		4822 462 42129	FOOT REAR
252		4822 532 60948	BUSH, PLASTIC
256		4822 502 13921	SCREW, STEEL
271		4822 404 10933	PLASTIC SUPPORT(LCBS-22)
▲ 385	N	4822 321 11139	MAINS CORD
▲ 385	U	4822 321 11464	MAINS CORD
▲ 385	F	4822 321 11349	MAINS CORD
1605		4822 323 10406	FLEX CABLE 15P
▲ 5011	PM7000 N	4822 146 10823	MAINS TRANSFORMER
▲ 5011	PM8000 N	4822 146 10844	MAINS TRANSFORMER
▲ 5011	PM7000 U	4822 146 10854	MAINS TRANSFORMER
▲ 5011	PM8000 F	4822 146 10853	MAINS TRANSFORMER
<b>PACKING</b>			
384		3139 228 82240	REMOTE CONTROL RC0465/02
387	N	3139 116 18910	USER GUIDE
387	U	3139 116 18920	USER GUIDE
387	F	3139 116 18930	USER GUIDE

## 8. IDLING CURRENT AND DC OFFSET VOLTAGE ALIGNMENT

### 8.1 Quiescent Current Adjustment for Class AB

- Set to CD mode with no input, minimum volume position & mains supply at 230 V  $\pm$  5 %.
- Power up the unit, adjust **SLOWLY** 3299 (L) & 3300 (R) until voltage across L-Channel -----3335 (T007 / T006) & 3337 (T009 / T010), R-Channel ----- 3336 (T013 / T014) & 3338 (T015 / T016) is as per the table below.

Time	Voltage
after 30 sec to 1 min*	0.3 mV to < 0.4 mV

- After 30 min, the voltage should settle down to 18 mV  $\pm$  3 mV.

\* Start from cold condition.

### 8.2 Quiescent Current Adjustment for Class A.

- Next, switch to Class A operation. Adjust **SLOWLY** 3309 (L) & 3310 (R) until voltage across L-Channel ----- 3335 (T007 / T006) & 3337 (T009 / T010) , R-Channel ----- 3336 (T013 / T014) & 3338 (T015 / T016) is as per the table below.

Time	Voltage
after 0 sec to 30 sec**	65 mV to <70 mV

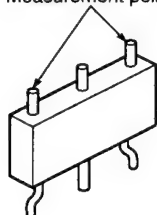
- After 30 min, the voltage should settle down to 90 mV  $\pm$  5 mV.

\*\* Continue immediately after 8.1

#### REMARKS:

- Please take note that for both Class AB & A alignment, at all time during adjustment, refer to the higher reading of each channel.

Quiescent Current  
Measurement point



POS.No.  
3335  
3337  
3336  
3338

### 8.3 DC Offset.

- Adjust 3263 and 3264 until DC offset voltage is less than  $\pm$ 10 mV at Speaker output terminal.

## 8. アイドリング電流およびDCオフセット電圧調整

### 8.1 アイドリング電流調整 (Class AB)

- 1) 本体の電源スイッチを入れる前に、ボリュームを最小に、バランス及びトーンコントロールをセンターに合わせます。
- 2) CDモードにし、電源電圧を100Vにします。
- 3) セメント抵抗、3335 (T007 / T006) 、3337 (T009 / T010) のLチャンネルと3336 (T013 / T014) 、3338 (T015 / T016) のRチャンネル各々の電圧が下記の値になるまで、半固定抵抗3299 (L) と3300 (R) をゆっくり調整します。

時間	電圧
30秒－1分*	0.3mV以上0.4mV以下

30分後、電圧は18mV $\pm$ 3mVに安定します。

\* 冷却状態からスタートします。

### 8.2アイドリング電流調整 (Class A)

- 1) A クラス動作に切り換えます。
- 2) セメント抵抗3335 (T007 / T006)、3337 (T009 / T010) のLチャンネルと3336 (T013 / T014) 、3338(T015 / T016)のRチャンネル各々の電圧が下記の値になるまで、半固定抵抗3309 (L) と3310 (R) ゆっくり調整します。

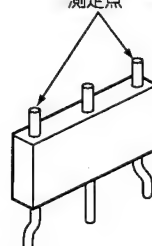
時間	電圧
0秒－30秒 **	65mV以上70mV以下

30分後、電圧は90mV $\pm$ 5mVに安定します。

\*\* 切換え後、すぐに行ってください。

注意：Aクラス動作及びABクラス動作のアイドリング電流調整において、同チャンネル内の2ヶ所の測定点で指示値に差異があった場合は、高い方の電圧値が調整範囲内となるようにします。

アイドリング電流  
測定点



POS.No.  
3335  
3337  
3336  
3338

### 8.3 DCオフセット電圧調整

DCオフセット電圧が、スピーカー出力端子で10mV以下になるまで半固定抵抗3263と3264を調整します。

## 9. ELECTRICAL PARTS LIST

### ASSIGNMENT OF COMMON PARTS CODES.

#### RESISTORS

R\* \*\*: 1) GD05 x x x 140, Carbon film fixed resistor,  $\pm 5\%$  1/4W  
 R\* \*\*: 2) GD05 x x x 160, Carbon film fixed resistor,  $\pm 5\%$  1/6W  
 → ① Resistance value

Examples ;

① Resistance value

0.1 $\Omega$ ..... 001	10 $\Omega$ ..... 100	1k $\Omega$ ... 102	100k $\Omega$ .... 104
0.5 $\Omega$ ..... 005	18 $\Omega$ ..... 180	2.7k $\Omega$ ... 272	680k $\Omega$ .... 684
1 $\Omega$ ..... 010	100 $\Omega$ ..... 101	10k $\Omega$ ... 103	1M $\Omega$ ..... 105
6.8 $\Omega$ ..... 068	390 $\Omega$ ..... 391	22k $\Omega$ ... 223	4.7M $\Omega$ .... 475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

#### CAPACITORS

C\* \*\*: CERAMIC CAP.

3) DD1 x x x x 370, Ceramic capacitor  
 Disc type  
 Temp.coef. P350~N1000, 50V  
 → ③ Capacity value  
 → ② Tolerance

Examples

② ATolerance (Capacity deviation)

$\pm 0.25$ pF ..... 0
$\pm 0.5$ pF ..... 1
$\pm 5\%$ ..... 5

\* Tolerance of COMMON PARTS handled here are as follows :

0.5 pF - 5 p	$\pm 0.25$ pF
6 pF - 10 pF	$\pm 0.5$ pF
12 F - 560 pF	$\pm 5\%$

③ Capacity value

0.5 pF ... 005	3 pF ... 030	100 pF ..... 101
1 pF ... 010	10 pF ... 100	220 pF ..... 221
1.5 p ... 015	47 pF ... 470	560 pF ..... 561

C\* \*\*: CERAMIC CAP.

4) DK16 x x x 300, High dielectric constant ceramic capacitor  
 Disc type  
 Temp.chara. 2B4, 50V  
 → ④ Capacity value

Examples

④ Capacity value

100 pF ..... 101	1000 pF ... 102	10000 pF .... 103
470 pF ..... 471	2200 pF ... 222	

C\* \*\*: 5) ELECTROLY CAP. (  ), 6) FILM CAP (  )

5) EA x x x x x 10, Electrolytic capacitor  
 One-way lead type Tolerance  $\pm 20\%$   
 → ⑤ Capacity value  
 → ⑥ Working voltage

Examples

⑤ Capacity value

0.1 $\mu$ F ... 04	4.7 $\mu$ F ... 475	100 $\mu$ F ..... 107
0.33 $\mu$ F ... 334	10 $\mu$ F ... 106	330 $\mu$ F ..... 337
1 $\mu$ F ... 105	22 $\mu$ F ... 226	1100 $\mu$ F ..... 118
		2200 $\mu$ F ..... 228

⑥ Working voltage

6.3 V ... 006	25 V ... 025
10 V ... 010	35 V ... 035
16 V ... 016	50 V ... 050

6) DF15 x x x 350 → Plastic film capacitor  
 DF15 x x x 310 → One-way type, Mylar  $\pm 5\%$  50V  
 DF16 x x x 310 → Plastic film capacitor  
 One-way type, Mylar  $\pm 10\%$  50V  
 → ⑦ Capacity value

Examples

⑦ Capacity value

0.001 $\mu$ F (1000pF) ..... 102	0.1 $\mu$ F ..... 104
0.0018 $\mu$ F ..... 182	0.56 $\mu$ F ..... 564
0.01 $\mu$ F ..... 103	1 $\mu$ F ..... 105
0.015 $\mu$ F ..... 151	

NOTE: 1) The above CODES (R\* \*\*, R\* \*\*, C\* \*\*, C\* \*\*, C\* \*\*, and C\* \*\*) are omitted on the schematic diagram in some case.

2) On the occasion, be confirmed the common parts on the parts list.

3) Refer to "Common Parts List" for the other common parts (RI05, DD4, DK4).

### NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows ;

1. KOA Corporation

Part No.(MJI)	Type No.(KOA)	Description
NH05 x x x 140	→ RF25S x x x x $\Omega$ J	( $\pm 5\%$ 1/4W)
NH05 x x x 120	→ RF50S x x x x $\Omega$ J	( $\pm 5\%$ 1/2W)
NH85 x x x 110	→ RF73B2A x x x x $\Omega$ J	( $\pm 5\%$ 1/10W)
NH95 x x x 140	→ RF73B2E x x x x $\Omega$ J	( $\pm 5\%$ 1/4W)

\* Resistance value

Resistance value (0.1  $\Omega$  - 10k  $\Omega$ )

2. Matsushita Electronic Components Co., Ltd

Part No.(MJI)	Type No.(MEC)	Description
NF05 x x x 140	→ ERD-2FCJ x x x	( $\pm 5\%$ 1/4W)
RF05 x x x 140	→ ERD-2FCG x x x	( $\pm 2\%$ 1/4W)
NF02 x x x 140	→ ERD-2FCG x x x	( $\pm 2\%$ 1/4W)

Examples :



\* Resistance value

0.1 $\Omega$ ..... 001	10 $\Omega$ ..... 100	1k $\Omega$ .. 102	100k $\Omega$ .... 104
0.5 $\Omega$ ..... 005	18 $\Omega$ ..... 180	2.7k $\Omega$ .. 272	680k $\Omega$ .... 684
1 $\Omega$ ..... 010	100 $\Omega$ ..... 101	10k $\Omega$ .. 103	1M $\Omega$ ..... 105
6.8 $\Omega$ ..... 068	390 $\Omega$ ..... 391	22k $\Omega$ .. 223	4.7M $\Omega$ .... 475


### ABBREVIATION AND MARKS

ANT. : ANTENNA	BATT. : BATTERY
CAP. : CAPACITOR	CER. : CERAMIC
CONN. : CONNECTING	DIG. : DIGITAL
HP : HEADPHONE	MIC. : MICROPHONE
$\mu$ -PRO : MICROPROCESSOR	REC. : RECORDING
RES. : RESISTOR	SPK : SPEAKER
SW : SWITCH	TRANSF. : TRANSFORMER
TRIM. : TRIMMING	TRS. : TRANSISTOR
VAR. : VARIABLE	X'TAL : CRYSTAL

### NOTE ON SAFETY:

Symbol  Fire or electrical shock hazard.  
 Only original parts should be used to replaced any part marked with symbol . Any other component substitution ( other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意 :

 がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
			<b>FUNCTION CIRCUIT BOARD</b>				<b>SEMICONDUCTORS</b>
			<b>CAPACITORS</b>				
2551		4822 126 12147	CER. 22NF 10% 25V	6605		4822 130 30621	DIODE 1N4148
2552		4822 126 12147	CER. 22NF 10% 25V	6608		4822 130 30621	DIODE 1N4148
2553	N	4822 122 33519	CER. 470pF 10% 50V	7555		4822 209 31153	IC NJM2114D
2554	N	4822 122 33519	CER. 470pF 10% 50V	7551			
2555	N	4822 126 14316	CER. 680pF 10% 50V	}		4822 130 42839	FET 2SK369BL
2555	U, F	4822 122 33849	CER. 150pF 10% 50V	7554			
2556	N	4822 126 14316	CER. 680pF 10% 50V	7601		4822 130 44568	TRS. BC557B
2556	U, F	4822 122 33849	CER. 150pF 10% 50V	7602		4822 130 40959	TRS. BC547B
2559		4822 124 12023	ELECT 47 $\mu$ F 20% 25V				<b>MISCELLANEOUS</b>
2560		4822 124 12023	ELECT 47 $\mu$ F 20% 25V	1551		4822 265 10311	CONNECTOR, 2P
2561		4822 121 70654	FILM 2N2 10% 50V	1601		4822 265 10311	CONNECTOR, 2P
2562		4822 121 70654	FILM 2N2 10% 50V	1602	PM7000	4822 267 20453	CONNECTOR, 6P
2563		4822 121 51399	FILM 47NF 10% 50V	1602	PM8000	4822 265 11061	CONNECTOR, 6P
2564		4822 121 51399	FILM 47NF 10% 50V	1603	PM7000	4822 267 31452	CONNECTOR, CABLE/WIRE
2565		4822 121 10685	FILM 1.8NF 10% 50V	1603	PM8000	4822 265 30996	CONNECTOR, CABLE/WIRE
2566		4822 121 10685	FILM 1.8NF 10% 50V	1604		4822 267 50915	CONNECTOR, 15P
2567		4822 121 41935	FILM 12NF 5% 250V	5551		4822 280 20501	RELAY MR62-24SR
2568		4822 121 41935	FILM 12NF 5% 250V	5601			
2569		4822 124 12024	ELECT 10 $\mu$ F 20% 16V	}		4822 280 20501	RELAY MR62-24SR
2570		4822 124 12024	ELECT 10 $\mu$ F 20% 16V	5612			
2571		4822 121 10696	FILM 4.7NF 2% 50V				<b>TAPE IN/OUT CIRCUIT BOARD</b>
2572		4822 121 10696	FILM 4.7NF 2% 50V				<b>CAPACITORS</b>
2573		4822 124 12022	ELECT 220 $\mu$ F 20% 25V	2631			
2574		4822 124 12022	ELECT 220 $\mu$ F 20% 25V	}		4822 126 12147	CER. 22NF 10% 25V
2575		4822 124 40248	ELECT 10 $\mu$ F 20% 63V	2638			
2601				2639			
}		4822 126 12147	CER. 22NF 10% 25V	}	N	4822 122 33849	CER. 150pF 10% 50V
2612				2646			
2613							<b>RESISTORS</b>
}	N	4822 122 33849	CER. 150pF 10% 50V				
2624				3621			
2647				}		4822 116 83866	1M 5% 1/6W
}		4822 124 40248	ELECT 10 $\mu$ F 20% 63V	3628			
2656				3629			
2659		4822 124 11566	ELECT 47 $\mu$ F 20% 50V	}		4822 116 83883	470R 5% 0.5W
			<b>RESISTORS</b>	3632			
3551		4822 116 83872	220R 5% 0.5W				<b>MISCELLANEOUS</b>
3552		4822 116 83872	220R 5% 0.5W	1611	PM7000	4822 267 31452	CONNECTOR, CABLE/WIRE
3553		4822 116 83884	47K 5% 0.5W	1611	PM8000	4822 265 30996	CONNECTOR, CABLE/WIRE
3554		4822 116 83884	47K 5% 0.5W	1612	PM7000	4822 267 31452	CONNECTOR, CABLE/WIRE
3555				1612	PM8000	4822 265 30996	CONNECTOR, CABLE/WIRE
}		4822 116 52283	4K7 5% 0.5W				
3560							<b>VOLUME CIRCUIT BOARD</b>
3561		4822 116 52206	120E 5% 0.5W				<b>CAPACITORS</b>
3562		4822 116 52206	120E 5% 0.5W	2653		4822 122 33195	CER. 100pF 10% 50V
3563		4822 116 52175	100E 5% 0.5W	2654		4822 122 33195	CER. 100pF 10% 50V
3564		4822 116 52175	100E 5% 0.5W	2657		4822 122 33524	CER. 22pF 5% 50V
3565		4822 116 52234	100K 5% 0.5W	2658		4822 122 33524	CER. 22pF 5% 50V
3566		4822 116 52234	100K 5% 0.5W	2659		4822 126 12339	CER. 2.2NF 10%
3567		4822 116 52289	5K6 5% 0.5W	2660		4822 126 12339	CER. 2.2NF 10%
3568		4822 116 52289	5K6 5% 0.5W	2661		4822 124 12026	ELECT 22 $\mu$ F 20% 25V
3569		4822 116 52175	100E 5% 0.5W	2662		4822 124 12026	ELECT 22 $\mu$ F 20% 25V
3570		4822 116 52175	100E 5% 0.5W	2663		4822 121 10686	FILM 4.7NF 10% 50V
3571		4822 116 52234	100K 5% 0.5W	2664		4822 121 10686	FILM 4.7NF 10% 50V
3572		4822 116 52234	100K 5% 0.5W	2665		4822 124 12434	ELECT 220 $\mu$ F 20% 16V
3573		4822 116 83872	220R 5% 0.5W	2666		4822 124 12434	ELECT 220 $\mu$ F 20% 16V
3574		4822 116 83872	220R 5% 0.5W	2667		4822 124 40769	ELECT 4.7 $\mu$ F 20% 10V
3575		4822 052 10479	47R 5% 0.33W	2668		4822 124 40769	ELECT 4.7 $\mu$ F 20% 10V
3576		4822 052 10479	47R 5% 0.33W	2669		4822 124 12027	ELECT 2.2 $\mu$ F 20% 50V
3601				2670		4822 124 12027	ELECT 2.2 $\mu$ F 20% 50V
}		4822 116 83866	1M 5% 0.5W	2671		4822 122 30043	CER. 10NF 80% 63V
3618							
3633		4822 050 21003	10K 1% 0.6W				
3634		4822 050 21003	10K 1% 0.6W				
3635		4822 050 21003	10K 1% 0.6W				
3637		4822 050 21003	10K 1% 0.6W				

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
			<b>RESISTORS</b>				
3651	PM7000	4822 116 83874	220K 5% 0.5W	3416		4822 116 83881	390R 5% 0.5W
3651	PM8000	4822 116 52244	15K 5% 0.5W	3422			
3652	PM7000	4822 116 83874	220K 5% 0.5W	3423			
3652	PM8000	4822 116 52244	15K 5% 0.5W	}		4822 116 52234	100K 5% 0.5W
3653		4822 050 11002	1K 1% 0.4W	3426			
3654		4822 050 11002	1K 1% 0.4W	3427			
3655	PM7000	4822 116 52206	120E 5% 0.5W	}		4822 050 21003	10K 1% 0.6W
3655	PM8000	4822 116 83876	270R 5% 0.5W	3436			
3656	PM7000	4822 116 52206	120E 5% 0.5W	3437		4822 116 52234	100K 5% 0.5W
3656	PM8000	4822 116 83876	270R 5% 0.5W	3438		4822 116 52234	100K 5% 0.5W
3657				3439		4822 116 52234	100K 5% 0.5W
}		4822 116 52283	4K7 5% 0.5W	3440		4822 116 83872	220R 5% 0.5W
3662				3441		4822 116 52234	100K 5% 0.5W
3663		4822 116 83872	220R 5% 0.5W	3442		4822 050 23303	33K 1% 0.6W
3664		4822 116 83872	220R 5% 0.5W	3443		4822 116 52257	22K 5% 0.5W
3665		4822 116 83866	1M 5% 0.5W	3444		4822 116 52283	4K7 5% 0.5W
3666		4822 116 83866	1M 5% 0.5W	3445		4822 116 52256	2K2 5% 0.5W
3667	PM7000	4822 050 11002	1K 1% 0.4W	3446		4822 116 52257	22K 5% 0.5W
3667	PM8000	4822 116 52256	2K2 5% 0.5W	3447		4822 116 52175	100E 5% 0.5W
3668	PM7000	4822 050 11002	1K 1% 0.4W	3448			
3668	PM8000	4822 116 52256	2K2 5% 0.5W	}		4822 050 21003	10K 1% 0.6W
3669		4822 116 52175	100E 5% 0.5W	3451			
3670		4822 116 52175	100E 5% 0.5W	3452		4822 052 10101	100R 5% 0.33W
3671		4822 116 52234	100K 5% 0.5W	3453			
3672		4822 116 52234	100K 5% 0.5W	}		4822 050 21003	10K 1% 0.6W
3673		4822 116 83872	220R 5% 0.5W	3459			
3674		4822 116 83872	220R 5% 0.5W	3460		4822 116 52257	22K 5% 0.5W
▲ 3675		4822 052 10479	47R 5% 0.33W	3461		4822 050 21003	10K 1% 0.6W
▲ 3676		4822 052 10479	47R 5% 0.33W	3462		4822 116 83884	47K 5% 0.5W
3681	PM7000	4822 101 11789	VARIAB. 50K X2 20% 0.05W	3463		4822 050 21003	10K 1% 0.6W
3681	PM8000	4822 101 11803	VARIAB. RK16314MC(50KX2)	3464		4822 050 21003	10K 1% 0.6W
			<b>SEMICONDUCTORS</b>	3465		4822 116 52257	22K 5% 0.5W
				3466		4822 116 52195	47E 5% 0.5W
7651				3467		4822 052 10101	100R 5% 0.33W
}		4822 130 42839	FET 2SK369BL	3468			
7654				}		4822 050 21003	10K 1% 0.6W
7655		4822 209 31153	IC NJM2114D	3488			
			<b>FRONT CIRCUIT BOARD</b>	3489		4822 116 83884	47K 5% 0.5W
			<b>CAPACITORS</b>	3490		4822 050 21003	10K 1% 0.6W
2401		4822 121 51387	FILM 10NF 20% 16V	3491		4822 116 83884	47K 5% 0.5W
2403		4822 121 51387	FILM 10NF 20% 16V	3492		4822 050 21003	10K 1% 0.6W
2404		4822 124 81151	ELECT 22μF 50V	3493		4822 116 83884	47K 5% 0.5W
2405		4822 124 81151	ELECT 22μF 50V	3494		4822 050 21003	10K 1% 0.6W
2406		4822 124 80818	ELECT 22M 5.5V	3495		4822 116 83872	220R 5% 0.5W
2407		4822 126 12882	CER. 100NF +80-20% 50V	3496		4822 116 52256	2K2 5% 0.5W
2408		4822 124 81151	ELECT 22μF 50V	3541	PM8000	4822 053 10332	3K30 5% 1W
2409		4822 124 81151	ELECT 22μF 50V	3542		4822 050 21003	10K 1% 0.6W
2410		4822 121 51387	FILM 10NF 20% 16V	3543		4822 116 83881	390R 5% 0.5W
2411		4822 121 51387	FILM 10NF 20% 16V	3544		4822 050 21003	10K 1% 0.6W
2412		4822 124 81151	ELECT 22μF 50V	3545		4822 116 83881	390R 5% 0.5W
2413		4822 121 51387	FILM 10NF 20% 16V	3546		4822 050 21003	10K 1% 0.6W
2414		4822 126 12882	CER. 100NF +80-20% 50V	3547		4822 050 21003	10K 1% 0.6W
2415		4822 124 81151	ELECT 22μF 50V				<b>SEMICONDUCTORS</b>
2416		4822 121 51387	FILM 10NF 20% 16V	6401		4822 130 30621	DIODE N4-148
2417		4822 121 51387	FILM 10NF 20% 16V	}			
2425				6404		4822 130 34174	DIODE 1ZX 79-B4V7
}		4822 126 12882	CER. 100NF +80-20% 50V	6405			
2428				6406			
			<b>RESISTORS</b>	}		4822 130 82978	LED ITL-16KPE-P
3401		4822 052 10101	100R 5% 0.33W	6413			
3402		4822 116 52234	100K 5% 0.5W	6414	PM8000	4822 130 82978	LED ITL-16KPE-P
3403				6415		4822 130 82978	LED ITL-16KPE-P
}		4822 050 21003	10K 1% 0.6W	6416		4822 130 82978	LED ITL-16KPE-P
3408				6417		4822 130 30621	DIODE N4-148
				6418		4822 130 30621	DIODE N4-148
				7401		4822 209 15719	IC MP47C200BN
				7402		4822 209 30193	IC B1641

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
7404		4822 130 40959	TRS. BC547B	2509		4822 122 33293	CER. 100pF 5% 50V
7405		4822 130 40959	TRS. BC547B	2510		4822 122 33293	CER. 100pF 5% 50V
7406		4822 130 40959	TRS. BC547B	2511		4822 124 40769	ELECT 4.7 $\mu$ F 20% 100V
7407		4822 130 44568	TRS. BC557B	2512		4822 124 40769	ELECT 4.7 $\mu$ F 20% 100V
7408		4822 130 40959	TRS. BC547B	2513		4822 121 51399	FILM 47NF 10% 50V
7409				2514		4822 121 51399	FILM 47NF 10% 50V
7412		4822 130 44568	TRS. BC557B	2515		4822 124 12022	ELECT 220 $\mu$ F 20% 25V
7413		4822 130 40959	TRS. BC547B	2516		4822 124 12022	ELECT 220 $\mu$ F 20% 25V
7414		4822 130 40959	TRS. BC547B	2517		4822 124 40763	ELECT 2.2 $\mu$ F 100 V
7415		4822 130 44568	TRS. BC557B	2518		4822 124 40763	ELECT 2.2 $\mu$ F 100 V
7416		4822 130 40959	TRS. BC547B	2519		4822 121 10686	FILM 4.7NF 10% 50V
7417		4822 130 44568	TRS. BC557B	2520		4822 121 10686	FILM 4.7NF 10% 50V
7418		4822 130 40959	TRS. BC547B	2535		4822 122 33195	CER. 100pF 10% 50V
7419		4822 130 44568	TRS. BC557B	2536		4822 122 33195	CER. 100pF 10% 50V
7420		4822 130 40959	TRS. BC547B				
7421		4822 130 44568	TRS. BC557B	▲ 3203		4822 052 10479	RESISTORS
7422		4822 130 40959	TRS. BC547B	3501			47R 5% 0.33W
7423		4822 130 44568	TRS. BC557B	3504		4822 116 83866	1M 5% 0.5W
7424		4822 130 40959	TRS. BC547B	3505			
7425		4822 130 44568	TRS. BC557B	3506		4822 116 83874	220K 5% 0.5W
7426		4822 130 40959	TRS. BC547B	3507		4822 116 83874	220K 5% 0.5W
7427		4822 130 44568	TRS. BC557B	3508		4822 116 83872	220R 5% 0.5W
7428				3509		4822 116 83872	220R 5% 0.5W
7431		4822 130 40959	TRS. BC547B	3510		4822 116 52269	3K3 5% 0.5W
7432		4822 130 44568	TRS. BC557B	3511		4822 116 52269	3K3 5% 0.5W
7433		4822 130 44568	TRS. BC557B	3512		4822 101 11788	VARIAB. 10K X2 20% 0.05W
7434		4822 130 40959	TRS. BC547B	▲ 3513		4822 101 11788	VARIAB. 10K X2 20% 0.05W
				▲ 3514		4822 052 10479	47R 5% 0.33W
1401		4822 276 13114	MISCELLANEOUS	3515		4822 052 10479	47R 5% 0.33W
1402		4822 276 13114	SWITCH, PUSH BUTTON	3516		4822 116 52207	1K2 5% 0.5W
1403		4822 273 10336	SWITCH, PUSH BUTTON	3517		4822 116 52207	1K2 5% 0.5W
			SWITCH, ROTARY	3518		4822 116 52291	56K 5% 0.5W
			SRBV14-F1620-11	3519		4822 116 52291	56K 5% 0.5W
1407		4822 267 51322	CONNECTOR, 15P	3520		4822 116 52207	1K2 5% 0.5W
5400		4822 242 72527	FILTER, CERAMIC	3521		4822 116 52207	1K2 5% 0.5W
			CST4.00MGW-TF01	3522		4822 116 52291	56K 5% 0.5W
5401		4822 157 50963	COIL 2.2 $\mu$ H	3523		4822 116 52291	56K 5% 0.5W
7403		4822 130 10165	REMOTE RECEIVER GP1U28XP	▲ 3524		4822 052 10479	47R 5% 0.33W
				3525		4822 052 10479	47R 5% 0.33W
				3526		4822 116 83872	220R 5% 0.5W
				3527		4822 116 83872	220R 5% 0.5W
3497		4822 116 52175	ENCODER CIRCUIT BOARD	3528		4822 116 83874	220K 5% 0.5W
3498		4822 116 52175	RES. 100E 5% 0.5W	3529		4822 116 83874	220K 5% 0.5W
			RES. 100E 5% 0.5W	3537		4822 101 30828	VARIAB. 100K
1404		4822 273 10237	SWITCH, ROTARY	3538		4822 116 52269	3K3 5% 0.5W
			SRRS1C(G79424930)	3539		4822 116 52269	3K3 5% 0.5W
				3540		4822 116 52234	100K 5% 0.5W
						4822 116 52234	100K 5% 0.5W
2201		4822 122 30043	CER. 10NF 80% 63V				
2202		4822 122 30043	CER. 10NF 80% 63V	▲ 6201		4822 130 31878	SEMICONDUCTORS
2203		4822 124 12025	ELECT 470 $\mu$ F 20% 35V	▲ 6202		4822 130 31878	DIODE 1N4003G
2204		4822 124 41329	ELECT 2200 $\mu$ F 20% 35V	▲ 6203		4822 130 31878	DIODE 1N4003G
2205		4822 124 12022	ELECT 220 $\mu$ F 20% 25V	▲ 6204		4822 130 31878	DIODE 1N4003G
2206		4822 124 12022	ELECT 220 $\mu$ F 20% 25V	7201		5322 209 86361	IC MCT7915CT
2207		4822 124 12025	ELECT 470 $\mu$ F 20% 35V	7202		5322 209 71759	IC MCT7815CT
2208		4822 124 40257	ELECT 220 $\mu$ F 20% 63V	7203		5322 130 44349	TRS. BC635
2209		4822 124 12025	ELECT 470 $\mu$ F 20% 35V	7501		4822 209 73064	IC NJM2068DD
2210		4822 124 12025	ELECT 470 $\mu$ F 20% 35V	7502		4822 209 73064	IC NJM2068DD
2211	N	4822 122 30103	CER. 22NF 80% 63V	7503		4822 209 73064	IC NJM2068DD
2501		4822 124 81151	ELECT 22 $\mu$ F 50V				
2502		4822 124 81151	ELECT 22 $\mu$ F 50V				
2503		4822 122 33849	CER. 150pF 10% 50V	▲ 1201		4822 071 55001	MISCELLANEOUS
2504		4822 122 33849	CER. 150pF 10% 50V	▲ 1202		4822 071 55001	FUSE 19372(500MA)
2505		4822 124 12022	ELECT 220 $\mu$ F 20% 25V	1500		2422 128 02902	FUSE 19372(500MA)
2506		4822 124 12022	ELECT 220 $\mu$ F 20% 25V				SWITCH, PUSH
2507		4822 121 41857	FILM 10NF 5% 250V				
2508		4822 121 41857	FILM 10NF 5% 250V				





POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
3285		4822 116 52264	27K 5% 0.5W				<b>SEMICONDUCTORS</b>
3286		4822 116 52264	27K 5% 0.5W	6251			
3287		4822 116 83868	150R 5% 0.5W	}		4822 130 30621	DIODE 1N4148
3288		4822 116 83868	150R 5% 0.5W	6266			
3289	PM7000	4822 116 83874	220K 5% 0.5W	6267			
3289	PM8000	4822 116 83884	47K 5% 0.5W	}		5322 130 34834	DIODE BZX79-C3V6
3290	PM7000	4822 116 83874	220K 5% 0.5W	6270			
3290	PM8000	4822 116 83884	47K 5% 0.5W	6271		4822 130 30621	DIODE 1N4148
3291	PM7000	4822 116 83874	220K 5% 0.5W	6272		4822 130 30621	DIODE 1N4148
3291	PM8000	4822 116 83884	47K 5% 0.5W	6273			
3292	PM7000	4822 116 83874	220K 5% 0.5W	}		4822 130 30842	DIODE BAV21
3292	PM8000	4822 116 83884	47K 5% 0.5W	6278			
3293		4822 116 83868	150R 5% 0.5W	6279		4822 130 30621	DIODE 1N4148
3294		4822 116 83868	150R 5% 0.5W	6280		4822 130 30621	DIODE 1N4148
3295				6281		4822 130 30621	DIODE 1N4148
}		4822 052 10109	10E 5% 0.33W	7251			
3298				}		4822 130 43233	TRS. 2SC2240GR
3299		4822 101 11787	VARIAB. 100R 30% 0.1W	7256			
3300		4822 101 11787	VARIAB. 100R 30% 0.1W	7257			
3301		4822 116 83876	270R 5% 0.5W	}		4822 130 42949	TRS. 2SA970GR
3302		4822 116 83876	270R 5% 0.5W	7260			
3303		4822 116 52207	1K2 5% 0.5W	7261		4822 130 43233	TRS. 2SC2240GR
3304		4822 116 52207	1K2 5% 0.5W	7262		4822 130 43233	TRS. 2SC2240GR
3305		4822 116 80176	1E 5% 0.5W	7263		4822 130 61009	TRS. 2SC3423(O)
3306		4822 116 80176	1E 5% 0.5W	7264		4822 130 61009	TRS. 2SC3423(O)
3309	PM8000	4822 100 20166	VARIAB. 10K 30% LIN 0.1W	7265		5322 130 61728	TRS. 2SA1360-Y
3310	PM8000	4822 100 20166	VARIAB. 10K 30% LIN 0.1W	7266		5322 130 61728	TRS. 2SA1360-Y
3311		4822 050 11002	1K 1% 0.4W	▲ 7267		4822 130 60117	TRS. 2SC3419
3312		4822 050 11002	1K 1% 0.4W	▲ 7268		4822 130 60117	TRS. 2SC3419
3313				7269	PM8000	4822 130 90347	COUPLER /PHOTO PC817
}		4822 052 10101	100R 5% 0.33W	7270	PM8000	4822 130 90347	COUPLER /PHOTO PC817
3316				7271		4822 130 41646	TRS. BF423
3317				7272		4822 130 41646	TRS. BF423
}		4822 052 10681	680R 5% 0.33W	7273		4822 130 41782	TRS. BF422
3320				7274		4822 130 41782	TRS. BF422
3321				▲ 7275		4822 130 63634	TRS. 2SA1837Y
}		4822 052 10479	47R 5% 0.33W	▲ 7276		4822 130 63634	TRS. 2SA1837Y
3324				▲ 7277		4822 130 10941	TRS. 2SC4793
▲ 3325		4822 052 10151	150R 5% 0.33W	▲ 7278		4822 130 10941	TRS. 2SC4793
▲ 3326		4822 052 10151	150R 5% 0.33W	▲ 7279	PM7000	4822 130 10942	TRS. 2SA1941
▲ 3327				▲ 7279	PM8000	4822 130 37279	TRS. 2SA1962
}		4822 052 10109	10R 5% 0.33W	▲ 7280	PM7000	4822 130 10942	TRS. 2SA1941
▲ 3334				▲ 7280	PM8000	4822 130 10983	TRS. 2SA1962
▲ 3335				▲ 7281	PM7000	4822 130 10943	TRS. 2SC5198
}		4822 116 82049	2 X R18 3W	▲ 7281	PM8000	4822 130 10984	TRS. 2SC5242
▲ 3338				▲ 7282	PM7000	4822 130 10943	TRS. 2SC5198
3339				▲ 7282	PM8000	4822 130 10984	TRS. 2SC5242
}		4822 050 21002	1K 1% 0.6W	▲ 7283	PM7000	4822 130 10942	TRS. 2SA1941
3342				▲ 7283	PM8000	4822 130 10983	TRS. 2SA1962
3343		4822 116 52257	22K 5% 0.5W	▲ 7284	PM7000	4822 130 10942	TRS. 2SA1941
3344		4822 116 52257	22K 5% 0.5W	▲ 7284	PM8000	4822 130 10983	TRS. 2SA1962
3345		4822 116 52289	5K6 5% 0.5W	▲ 7285	PM7000	4822 130 10943	TRS. 2SC5198
3346		4822 116 52257	22K 5% 0.5W	▲ 7285	PM8000	4822 130 10984	TRS. 2SC5242
3347	PM7000	4822 116 52297	68K 5% 0.5W	▲ 7286	PM7000	4822 130 10943	TRS. 2SC5198
3347	PM8000	4822 116 83882	39K 5% 0.5W	▲ 7286	PM8000	4822 130 10984	TRS. 2SC5242
3348		4822 116 52257	22K 5% 0.5W	7287		4822 130 43233	TRS. 2SC2240GR
3349		4822 116 52297	68K 5% 0.5W	7288		4822 130 43233	TRS. 2SC2240GR
3350		4822 116 52297	68K 5% 0.5W	7289		4822 130 42949	TRS. 2SA970GR
3351		4822 052 10221	220R 5% 0.33W				
3352		4822 052 10221	220R 5% 0.33W				
3353		4822 053 12109	10R 5% 3W	1255		4822 265 11068	<b>MISCELLANEOUS</b> CONNECTOR,LOUDSPEAKER SOCKET LEFT
3354		4822 053 12109	10R 5% 3W				
3355		4822 053 11331	330R 5% 2W	1256		4822 265 11069	CONNECTOR,LOUDSPEAKER SOCKET RIGHT
3356		4822 053 11331	330R 5% 2W				
3369	PM8000	4822 050 11002	1K 1% 0.4W	5268		4822 280 70354	RELAY VB-24MBU-510
3370	PM8000	4822 050 11002	1K 1% 0.4W	5269		4822 280 70354	RELAY VB-24MBU-510
				5270		4822 280 20501	RELAY MR62-24SR
				5351		4822 157 70599	COIL
				5352		4822 157 70599	COIL



POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
			<b>SPK PROTECT CIRCUIT BOARD</b>				
			<b>CAPACITORS</b>				
2277		4822 121 51387	FILM 10NF 20% 16V				
2278		4822 124 40433	ELECT 47 $\mu$ F 20% 25V				
2279		4822 124 40433	ELECT 47 $\mu$ F 20% 25V				
2281		4822 124 21913	ELECT 1 $\mu$ F 20% 63V				
2282		4822 124 40433	ELECT 47 $\mu$ F 20% 25V				
			<b>RESISTORS</b>				
3357		4822 116 83884	47K 5% 0.5W				
3358		4822 053 10103	10K 5% 1W				
3360		4822 116 83874	220K 5% 0.5W				
3361		4822 050 23303	33K 1% 0.6W				
3362		4822 116 52291	56K 5% 0.5W				
3364		4822 053 10223	22K 5% 1W				
3365		4822 116 52234	100K 5% 0.5W				
			<b>SEMICONDUCTOR</b>				
7290		4822 209 83312	IC TA7317P				
			<b>SPK SW CIRCUIT BOARD</b>				
			<b>CAPACITORS</b>				
2533		4822 122 30043	CER. 10NF 80% 63V				
2534		4822 122 30043	CER. 10NF 80% 63V				
			<b>RESISTORS</b>				
3530		4822 116 52256	2K2 5% 0.5W				
3531		4822 116 52256	2K2 5% 0.5W				
3532		4822 116 52257	22K 5% 0.5W				
3533		4822 116 52176	10E 5% 0.5W				
3534		4822 116 52176	10E 5% 0.5W				
3535		4822 116 52234	100K 5% 0.5W				
			<b>SEMICONDUCTORS</b>				
6529		4822 130 30621	DIODE 1N4148				
7529		4822 130 44283	TRS. BC636				
7530		4822 130 44568	TRS. BC557B				
			<b>MISCELLANEOUS</b>				
1507		2422 128 02897	SWITCH UNIT				
1510		4822 267 31453	CONNECTOR, HLJ1540				

